

Dissertation

Residential cognitive and interpersonal treatment for social phobia: Outcomes, predictors and factors associated with in treatments changes of social phobia

Finn-Magnus Borge

Research Institute, Modum Bad.

Department of Psychology,

Faculty of Social Sciences,

University of Oslo.

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*Series of dissertations submitted to the
Faculty of Social Sciences, University of Oslo
No. 260*

ISSN 1504-3991

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1. OVERVIEW

1.1 *Summary*

The prevalence of social phobia is high, and the impact on the life of individuals suffering from this disorder is devastating. Several studies have shown that individuals with social phobia have difficulties to apply for help. When they do seek treatment, they have often not responded. If untreated, it demonstrates an enduring, and frequently lifelong course. As a consequence, it is important to develop effective treatments. The aim of this dissertation is to gather knowledge on how well two promising different psychological treatments for social phobia; cognitive and interpersonal therapy, could be implemented in a residential setting, which factors affected the course of treatment, and for whom the treatment was most suitable. Individual cognitive therapy (CT) for social phobia has produced large improvement on specific social phobia symptoms, whereas individual interpersonal therapy (IPT) has lead to promising improvement, but not equivalent to CT. The dissertation consists of three papers on patients admitted to two specifically developed residential treatment programs localized at two different departments at the Modum Bad psychiatric hospital. The treatments were medication-free. The 80 participants were randomized to either residential CT or residential IPT and assessed at evaluation, pre treatment, mid treatment, post treatment, and one year follow-up.

The first paper reports on the effect of treatments at mid treatment, post treatment and one year follow up. The key findings were reliable improvements on main and secondary outcomes from pre treatment to posttreatment, and from post treatment to one year follow-up, indicating that the improvements were robust and permanent. Twenty five patients (31%)

exhibited clinically significant improvement at post treatment, rising to 38 (48%) at one year follow-up. These were considered to have recovered. Additional patients had reliably improved (but not recovered), so that 45 patients (56%) had improved at post treatment, and 56 (70%) at one year follow-up. No between treatment condition differences were observed, the hypothesized superiority of residential CT on specific social phobia symptoms did not occur.

The second paper examines the course of avoidant (AvPD) and dependent (DPD) personality disorders, pre treatment predictors of changes in avoidant (AvPD) and dependent (DPD) personality dimensions and how changes in treatment factors affect changes in these personality dimensions. The results showed a marked decrease in number of patients who satisfied the criteria of a PD at one year follow-up, and the majority of patients had no PD. Only pre treatment use of anxiolytics predicted changes in the PD indices, so that pre treatment use of anxiolytics predicted larger improvements. Patients in residential CT improved more on DPD dimension than residential IPT patients. Changes in the cognitive factor estimated cost was the most powerful in treatment factor associated with changes in DPD and AvPD dimensions.

The third paper explores predictors of post treatment and one year follow-up outcome, with a focus on the influence of cognitive and social dysfunction. Sotsky and colleagues (1991) found differential effects of CT and IPT for depression, suggesting that level of cognitive and social dysfunction predicted differential outcome. Sotsky and colleagues' findings were not reproduced. Residential IPT patients with poor pre treatment general functioning were less improved following treatment, whereas pre treatment level of dysfunction was of no significance in residential CT. Patients with comorbid panic disorder with agoraphobia responded better compared to patients without such comorbidity, in residential CT. Age of

onset and expectations were the most powerful predictors of post treatment outcome. Age of onset also predicted the one year outcome, exhibiting a robust longer term effect.

1.2 List of papers

1. Borge, F.-M., Hoffart, A., Sexton, H., Clark, D. M., Markowitz, J. C., & McManus, F. (2008). Residential Cognitive Therapy versus Residential Interpersonal Therapy for Social Phobia: A Randomized Clinical Trial. *Journal of Anxiety Disorders*, 22, 991-1010.
2. Borge, F.-M., Hoffart, A., Sexton, H., Martinsen, E., Gude, T., Hedley, L. M., & Abrahamsen, G. (2010). Pre-treatment predictors and in-treatment factors associated with change in avoidant and dependent personality dimensions among patients with social phobia. *Clinical Psychology and Psychotherapy*, 17, 87–99.
3. Borge, F.-M., Hoffart, A., & Sexton, H. (2010). Predictors of short term and longer term outcome in Residential Cognitive and Interpersonal Treatment for social phobia: Do cognitive and social dysfunction moderate treatment? *Journal of Behavior Therapy and Experimental Psychiatry*, 41, 212–219.

1.3 Acknowledgements

The present study was conducted at Modum bad, and financially supported by the Research Institute and Modum Bad psychiatric clinic.

I admire the patients for having worked so hard to fight their social phobia disorder. They showed confidence and generosity by being willing to be included in the study, and taking time and effort to complete all the questionnaires. Thank you to all of you!

I will express my deep gratitude for the persistent support from the director, Ole Johan Sandvand and the clinical director at the time, Per Anders Øien, who early in the process facilitated and made this project possible. Clinical director Tron Svagård and the directors at the Research Institute, Egil Martinsen, Tore Gude and Leigh McCullough also made valuable contributions by their warm and encouraging support.

The study was conceived by Asle Hoffart. As the architect and leader of the study he has ensured a firm scientific, clinical and administrative anchoring of the project by bringing together the Modum Bad Clinic and Research Institute in a fertile interaction. He has been my principal supervisor, and has encouraged me through all the phases of the project. Without the persistent efforts and persevering support from Asle, this dissertation would not have been possible to complete. He introduced me to Clark and Wells's cognitive model of social phobia back in 1999. Later on he introduced David M. Clark and his colleague Freda McManus to the entire anxiety team, to teach the specific social phobia treatment model. I want to thank those two eminent researchers and clinicians for their generous contributions in developing the residential treatment protocol. My second supervisor has been Harold Sexton, who contributed to develop the strategy and methodology of analyses. I am deeply grateful for his dedication, support and creative ideas how to optimize analyses of the rich material we had

collected through the treatment. I am also privileged to have enjoyed the brilliant humour and mood of my supervisors, which have regularly made the research fun to do.

I want to thank the two clinical teams who performed the treatment. The interpersonal therapists were Gun Abrahamsen, Johan Dahl, Per Anders Øien and Asle Hoffart, and in the cognitive team I had the privilege to have my dear colleague, Svein Myklebust with me. The other interpersonal team members were Randi Ramstad, Tore Bonsaksen, Jytte Granlund and Jorid Indset Gravdal. A special thank to Gun Abrahamsen, who was leader of the team performing the residential interpersonal therapy and contributed as co-author to paper 2. The cognitive team members were Wenche Bjøre, Unni Langehaug, Toril Vabø and Gro Nore. Gro has been an affectionate colleague all through the project, and ever since, she has endured me and supported me to finish the work. Thank you, Gro!

I am very impressed and grateful by the generous contributions from my international co-authors, David M. Clark and his colleague Freda McManus, who introduced us to the unpublished cognitive therapy treatment manual for social phobia, and co-drafted paper 1. John Markowitz, the highly respected interpersonal theorist, clinician and researcher, helped describing the key features of the interpersonal therapy, and I am very grateful for his strong contribution to the conclusions drawn in paper 1. K. Roy MacKenzie also contributed by teaching the interpersonal team for a whole week. Randi Ann Hoffart and Per Anders Øien supervised the interpersonal team.

The research colleagues have been important in giving me a very stimulating and supporting research milieu. Egil Martinsen, Tore Gude, Liv M. Hedley and Asle Hoffart assessed personality disorders and delivered valuable contributions to process paper 2. The secretaries of the Research Institute, Bjørg Vik Støver and Amina Kaggstad have been very helpful.

Björg wrote all the data from the questionnaires into the SPSS files, a huge and time consuming work, and she was always supportive and in a good mood. Thank you, Björg! I will also thank the secretaries in the clinic, Turid Haugen, Marianne Hartz and Anita Wesetrud for sending invitations to all the participants and delivering a comprehensive service handling all the journals.

I will thank the “blind” assessor, Sivert Versland for his patient efforts performing all the ADIS interviews, each participant was interviewed three times. Øyvind Røe assisted us by rating several tapes of diagnostic interviews to assess inter-rater reliability. Gro Nore and Peter Singleton translated sessions from Norwegian to English language. Kurt Myrvik helped us with the audio-video techniques in converting the sessions on tapes to digitalized media and synchronizing the translated dialogues.

I thank my dear colleagues, Anne Karin Pettersen Arvola, Tomas Langkaas and Cecilie Collin-Tiller who stepped in for me in the clinic, when I needed to focus on the research.

I will thank my family for their patience, when I had to focus more on the work than on them.

I am very proud of my parents and grateful to have been born as a wanted child. I lost my father 8 years old, but have been able to enjoy the good memories of him ever since. My mother looked forward to read the summary, but died when I almost had finished the work. I dedicate this dissertation to my parents, my wife Christine, and my two children, Christian and Thea as the most important persons in my life.

1.4 Abbreviations

ADIS-IV	The Anxiety Disorders Interview Schedule for DSM-IV
ANOVA	Analysis of variance
AvPD	Avoidant personality disorder
BAI	Beck Anxiety Inventory
BDI-II	Beck Depression Inventory, second version
CS	Clinical significance
CS	Credibility Scale
CSPRS-6	The Collaborative Study Psychotherapy Rating Scale
CT	Cognitive therapy
CTS	Cognitive Therapy Scale
DSM-III	Diagnostic Statistical Manual of Mental Disorders, Third edition
DSM-IV	Diagnostic Statistical Manual of Mental Disorders, Fourth edition
DPD	Dependent personality disorder
ES	Effect size
FNE	The Fear of Negative Evaluation
GCQ	Group Climate Questionnaire
GSP	Generalized social phobia
ICC	Intra-class correlation
IIP-64	Inventory of Interpersonal Problems, 64 items version
IIP-64 FG	Socially avoidant subscale of IIP-64
IIP-64 HI	Non-assertive subscale of IIP-64
IPT	Interpersonal therapy
ITT	Intention-to-treat
LOCF	Last observation carried forward
MANOVA	Multivariate analysis of variance
NGSP	Non-generalized social phobia
n.s.	Not significant
OCPD	Obsessive-compulsive personality disorder
RCI	Reliable change index
RCT	Residential cognitive therapy
RIPT	Residential interpersonal therapy
SAQ	Social Attitudes Questionnaire
SBQ	Social Behaviour Questionnaire
SCID-I	Structured Clinical Interview for DSM-IV, Axis I disorders
SCID-II	Structured Clinical Interview for DSM-IV, Axis II disorders
SD	Standard deviation
SP	Social phobia
SPAI	Social Phobia and Anxiety Inventory
SPAI-AG	Social Phobia and Anxiety Inventory, agoraphobia subscale
SPAI-SP	Social Phobia and Anxiety Inventory, social phobia subscale
SPCQ	Social Probability and Cost Questionnaire
SPSS	Statistical Package of the Social Sciences
SPWSS	Social Phobia Weekly Summary Scale
SSP	Specific social phobia
YSQ-S1	Young Schema Questionnaire, short form – first version
WHOQOL-	
BREF	The World Health Organisation Quality of Life Questionnaire, Brief version

2. INTRODUCTION

2.1 The nature of social phobia

Social phobia (SP) is characterized by fear of acting in a way that will be humiliating or embarrassing in social or performance situations. Social phobic persons fear that they will be evaluated negatively by others and ultimately rejected. Social fears were classified as belonging to the phobic disorders in the sixties (Marks & Gelder, 1965; Marks, 1970). Social phobia was first included in the diagnostic systems with the publication of DSM-III (American Psychiatric Association, 1980), intended to capture individuals whose fear was limited to one specific situation (e.g. public speaking or eating with others). In the absence of separate diagnostic criteria until the DSM-III 1980 edition, patients with SP symptoms frequently were diagnosed as having a mood disorder (e.g., major depression or dystymia).

A broader definition was introduced with the publication of DSM-III-R (American Psychiatric Association, 1987), recognizing individuals who exhibited fears in most interactional situations, and this group was subsequently included as a generalized subtype of social phobia. The individuals displaying fears in a limited number of social interactions intended to be covered in the 1980 edition, were not formally listed in the 1987 edition. The DSM-IV (American Psychiatric Association, 1994) retained the distinctions introduced in the 1987 edition, implying that one subgroup of social phobia is defined; the generalized subgroup.

The concept of social phobia implies that individuals suffering from this disorder exhibit extensive avoidance in their adaptation. Recognizing that a number of individuals with social phobia disorder have more subtle avoidance strategies, and, although at the sacrifice of high levels of anxiety, are able to face most social situations they fear, the term social anxiety

disorder (SAD) lately has been suggested to replace social phobia (Bögels et al., 2010).

SAD has already been widely introduced, a PubMed internet search (26th of mars 2010) applicable to 2009, yielded 147 hits for SP and 109 for SAD. The forthcoming revision in the DSM-V may prefer SAD as the future uniform term for the present social phobia disorder.

2.1.1 Diagnostic criteria

The diagnostic criteria of social phobia disorder according to the DSM-IV criteria (American Psychiatric Association, 1994), with the number code 300.23 is:

- A. A marked and persistent fear of one or more social or performance situations in which the person is exposed to unfamiliar people or to possible scrutiny by others. The individual fears that he or she will act in a way (or show anxiety symptoms) that will lead to humiliation or embarrassment Note: In children, there must be evidence of the capacity for age-appropriate social relationships with familiar people and the anxiety must occur in peer settings, not just in interactions with adults.
- B. Exposure to the feared social situation almost invariably provokes anxiety, which may take the form of a situationally bound or situationally predisposed *panic attack*. Note: In children, the anxiety may be expressed by crying, tantrums, freezing, or shrinking from social situations with unfamiliar people.
- C. The person recognizes that the fear is excessive or unreasonable. Note: In children, this feature may be absent.
- D. The feared social or performance situations are avoided or else are endured with intense anxiety or distress.

E. The avoidance, anxious anticipation, or distress in the feared social or performance situation(s) interferes significantly with the person's normal routine, occupational (academic) functioning, or social activities or relationships, or there is marked distress about having the phobia.

F. In individuals under age 18 years, the duration criteria is at least 6 months.

G. The fear or avoidance is not due to the direct physiological effects of a *substance* (e.g., a drug of abuse, a medication) or a general medical condition and is not better accounted for by another mental disorder (e.g., *Panic Disorder With or Without Agoraphobia*, *Separation Anxiety Disorder*, *Body Dysmorphic Disorder*, a *Pervasive Developmental Disorder*, or *Schizoid Personality Disorder*).

H. If a general medical condition or another mental disorder is present, the fear in criterion A is unrelated to it, e.g., the fear is not of stuttering, trembling in *Parkinson's disease*, or exhibiting abnormal eating behaviour in *Anorexia Nervosa* or *Bulimia Nervosa*.

Specify if: Generalized: if the fears include most social situations (also consider the additional diagnosis of *Avoidant Personality Disorder*)

The existing definitions and DSM-IV criteria are founded on the basis that social fears are activated in different situations, implying that these feared social situations should be the target to facilitate new learning, e.g. by exposure or behavior experiments. Further, it is emphasized that fear is connected to perceived deficits of behavior. In a recent theoretical discussion exploring the core fear in social phobia, Moscovitch (2009) propose a functionalistic perspective on social phobia, implying that it is the assumed deficient self-attributes exposed to potentially critical observers that individuals with social phobia fear, not the social situation itself. He finds clinical and empirical support to classify the self-attributes

into four dimensions: “(1) perceived flaws in social skills and behaviors; (2) perceived flaws in concealing potentially visible signs of anxiety; (3) perceived flaws in physical appearance; and (4) perceived characterological flaws” (p. 130). He argues that a feared situation is a function of the context, depending on the individuals’ expectations whether their perceived self-deficiencies will be exposed. These reflections by Moscovitch may be of great value in guiding clinicians to refine their interventions to obtain a more precise targeting of the specific social fears in each individual.

2.1.2 Emotions and cognitions in SP

In a functionalistic perspective, emotions (fear, anger, amusement, contentment, sadness, surprise), are considered to have evolved for their adaptive value (Ekman, 1992). Evidently, fear is a dominant emotion in social phobia. However, social phobia has also been viewed as part of a distinct family of self-conscious emotions including shame, guilt and embarrassment (Dickerson et al., 2004). These emotions are considered to be prominent reactions to social-evaluative transactions involving social standards. It has been recognized that self-conscious emotions may be distinguished from basic (or primary) emotions (e.g. fear or anger) by that they require more complex cognitive processing (Tracy & Robins, 2004). Embarrassment is a core concept in the DSM-IV criteria for social phobia, and has been defined by Miller (1995) as “an aversive state of mortification, abashment, and chagrin that follows public social predicaments” (p. 322). The most common causes of embarrassment are public situations in which an individual perceives to behave inappropriately (Miller, 1992), and that this failure of self-presentation may induce the individual to assume that others will judge him or her less favorable. Shame is not mentioned in the DSM-IV criteria, and the predominant position assigned to anxiety in clinical psychology, at the expense of shame has been discussed by Lee, Scragg and Turner (2001). Criticizing the prevailing research for focusing one-sidedly

exclusively on the dispositional aspects of shame at the expense of the interpersonal and contextual aspects, Leeming (2004) argues that: “experiences of shame emerge in the context of real or potential social encounters and are determined by the ways of understanding oneself available in the individual’s particular social and cultural context” (p. 390). Shame is characterized by “an acutely painful emotion that is typically accompanied by a sense of shrinking, of “being small” and by a sense of worthlessness and powerlessness” (Tangney, 1995, p. 1135). According to the pioneering phenomenological explorations done by Lewis (1971) almost four decades ago, shame activates a dual process in which the self emerges as both subject and object of observation and disapproval. In the experience of shame, the focus of evaluation is on the self, as opposed to the emotion of guilt in which “the self is negatively evaluated in connection with something but is not itself the focus of the experience” (Lewis, p. 30). The similarity between social anxiety, shyness and shame has been emphasized by Gilbert (2000), and empirically shame has been demonstrated to be a key feature underlying the triggering of social fear (Grabhorn et al., 2006). When individuals feel ashamed or embarrassed, they are assessing themselves from the perspective of other people. Self-conscious emotions are considered to be more connected to what the individuals think other people think of them, than to what they think of themselves (Miller, 1996), and constitutes the affective basis of core self-schemas. This shifting of perspective from self as subject to self as object is a central element in the cognitive model of social phobia, resulting in excessive self-focused attention serving to elicit, reinforce and maintain social anxiety, as will be more thoroughly discussed in the discourse of the cognitive model. It has been recognized that emotions in the self-conscious spectrum function as self-regulation of interpersonal behavior, guiding and motivating individuals to compliance of social norms and morals (Leary, 2007). The expressive capacity of self-conscious emotions (gaze aversion, hiding or reducing body size, bowed down head), shared among many other species, may serve as social signals

communicating peace overtures, pleasingness, or submissiveness (Keltner & Buswell, 1997; Schneier et al., 2009). Cultural differences may influence the meaning and expressions of shame. In Japan, shame-prone and self-effacing behavior are highly valued and actively promoted by society (Okano, 1994), whereas corresponding behaviors tends to be associated with contemptible responses by society in the western culture. Thus, it might appear that in the Japanese mental disorder of “*Taijin Kyofu*” (fear of offending somebody), which is roughly corresponding to social phobia in the western countries (Kinoshita, 2008), fear is associated with exhibiting too little public shame behavior, as opposed to the prevailing social phobic fear of exposing public shame behavior in western countries.

However, in at least one subgroup of social phobia, anger and aggression seems to play an important role. Alden and Capreol (1993), and Kachin, Newman and Pincus (2001) identified a subgroup of patients showing atypical responses to elicited anxiety and shame. Instead of submissiveness and non-assertiveness, some individuals demonstrated problems with anger, hostility and mistrustfulness. Such a subgroup has been characterized as disinhibited and high-novelty-seeking by Kashdan & Hofmann (2008). It is also noted that some individuals in typically shame-eliciting situations fly into a rage, and consequently may make sudden shifts from expressing self-conscious emotions to exhibit the primary emotion of anger, directed externally. Narcissistic personality traits may stimulate the transition of focus from self by making external attributions for negative events (Tracy & Robins, 2004).

In summary, both fear and anger, and the self-conscious emotions of embarrassment and shame, in which more complex cognitions are involved, appears as distinctive features in social phobia and are involved in processes serving to elicit and maintain social fears. The intense discomfort associated with shame, may in itself be an additional source of fear and avoidance.

2.1.3 The affective dysregulation of positive events in social phobia.

It has been widely recognized that SP is associated with fear of negative evaluation, and as mentioned above, this feature has been established as a core theme in the present diagnostic criteria. Recently, attention has also been directed to examine how socially anxious individuals manage to cope with positive evaluation (Alden, 2008; Kashdan, 2007). Lately, studies have suggested that it is the general fear of *evaluation* that is the core element, implying that individuals with SP fear both negative - and positive responses (Weeks, Heimberg, & Rodebaugh, 2008). Social success usually do not change fear in social phobia. On the contrary, positive feedback has been noticed to produce negative emotional state and increase self-protective behaviors (Wallace & Alden, 1997). SP appears to be accompanied with a reduced ability to experience positive affect (Brown, Chorpita & Barlow, 1998). This deficiency has been designated as “low positive affect” in temperamental and mood research (Watson, Clark, & Carey, 1988). Alden and colleagues (2008) suggest that such hedonic dysregulation may be associated with the absence of a positive inferential bias (serving to maintain self-esteem in healthy non-anxious individuals, see Hirsch & Matthews, 2000; de Jong, 2002; Tanner, Stopa & de Houwer, 2005). Moreover, socially anxious people seem to develop expectations to be more afflicted by fear in future encounters, as a consequence of previous positive feedback from a friendly partner (Alden, Mellings & Laposa, 2004; Gilboa-Schechtman, Franklin & Foa, 2000). The anticipatory fear of future positive responses may be related to the “perfectionistic” attitude characterizing social anxious individuals, which generate an assumption that others will expect more from them in the next interaction (Alden & Wallace, 1995). However, as they perceive themselves as incorrigible, they consider themselves to be unable to fulfil those anticipated external expectations. As a consequence, present successes in apparently positive social events are interpreted in a way that produce or maintain a sense of social danger. The malicious clinical effect of this lack of benign

interaction interpretation bias has been supported in a preliminary study (Murphy, Hirsch, Mathews, Smith & Clark, 2007). Socially anxious individuals who were trained to re-install such a bias, exhibited less negative interpretations of new social encounters, compared to an analogous group receiving no such training. Consequently, successful social interactions which could have produced joy, and initiated positive affect (as actually occurs among non-anxious people), are rather connected with risk of future failure among socially anxious individuals, and may therefore initiate negative affect and become a target of avoidance. Contrary to common sense, they feel ashamed of feeling good about themselves. The inclination to withdraw from potentially harmful events is part of a response pattern characterized by harm-avoidance, frequently observed in social phobics (Kashdan & Hofman, 2008).

In summary, social anxious individuals are probably biased to experience negative affect, and lack a natural naivety, an adaptive benign bias to expect support and acceptance in future social encounters. Thus, this deficient “lubrication” of the interactional cycles, contributes to less reward exposure, less positive affect, more negative affect (fear), and more behavioral inhibition and social isolation.

2.1.4 Interpersonal aspects of social phobia

Individuals with social phobia generally feel insecure in social relations, demonstrating impairment in social role performance (role insecurity). A variety of dysfunctional interpersonal behaviors have been associated with social phobia. Inadequate assertiveness and submission are perhaps the most common, and may make the individual vulnerable to be exploited. Another characteristic is the inclination to avoid disclosure, even in the presence of the self-disclosure of others (Alden & Bieling, 1998). Social anxious individuals exhibit gaze avoidance (Moukheiber et al., 2010), and they initiate social interactions less frequently than

non-anxious individuals (Spence et al., 1999). The non-disclosure interpersonal style and the lack of reciprocity and pro-social invites, may lead others to perceive social anxious individuals as cold (Alden & Wallace, 1995), and themselves as uninteresting, subsequently leading to affiliation withdrawal. The visible expressions of the fear response (shaking, blushing) may also trigger others to feel uncomfortable, by the process of contagion (Alden & Bieling, 1998). Interpersonal theories posit that we expect to be treated by people in the present as we were treated by people in the past (Blatt & Zuroff, 1992), leading to a corresponding current repetition of past response patterns. Individuals' expectations have proved to make significant differences when it comes to how others react to them. Individuals anticipating less favourable responses adopt self-protecting behaviors that elicit less friendly responses from previous neutral people (Curtis & Miller, 1986). Development of specific interpersonal styles, characterizing individuals with social fears (e.g. overly friendly-submissive) may restrict the availability of conceivable responses from others (Kiesler, 1983). In this perspective it is suggested that rigid interpersonal behaviors (e.g. subordinating own needs) tend to elicit complimentary responses from others (e.g. dominating behavior). Such maladaptive interpersonal behaviors contribute to maintain social fears, resulting in self-perpetuating interpersonal cycles (Alden & Taylor, 2004). It has been observed empirically that submissiveness tend to elicit dominance (Horowitz et al, 1991). It is also reported that social anxious individuals have specific deficits in the monitoring of how their nonverbal interpersonal behaviors influence others (Alden & Wallace, 1995). Thereby, interpersonal strategies intended to protect the individual from experiencing social fear, may generate and reinforce exactly the fears that the interpersonal behavior was intended to neutralize.

In summary, social phobia most strongly affect interpersonal relations, and some of the interpersonal behavior strategies intended to alleviate social fears, may make things worse.

2.1.5 Prevalence and severity

Social phobia is the most common anxiety disorder, estimated one-year prevalence is between 4 and 8 % (Magee et al, 1996; Kessler et al., 2005; Wittchen & Fehm, 2003) and lifetime prevalence is between 6 and 13% (Fresco, Erwin, Heimberg, & Turk, 2000; Grant et al., 2005; Kessler et al., 2005; Kringlen, Torgersen, & Cramer, 2001; Stein et al., 2009). It has been estimated that social phobia is the fourth most common lifetime mental disorder, exceeded only by depression, substance dependency and specific phobia (Kessler, et al., 2005). It is a debilitating disorder leading to severe impairment (Barrera & Norton, 2009; Stein & Kean, 2000). Untreated, it has a chronic course with a very low recovery rate compared to other clinical disorders. In long term naturalistic studies it appears that only 20 % of individuals with social phobia attain remission after two years, compared to 80 % for major depression disorder. After eight years, 67 % still retain diagnostic criteria compared to 33 % of individuals with panic disorder (Keller, 2003). Among anxiety disorders social phobia also most severely impact the global quality of life, specifically exerting a strong effect on self-realization and contact with friends (Cramer, Torgersen, & Kringlen, 2005). Apparently it leads to restricted quality of life and role functioning involving all fields. The implications for individuals with social phobia are; lower educational attainment, they are more seldom working, are more likely to live alone and are less inclined to seek help for their difficulties compared to individuals with other clinical disorders (Kessler, 2003). It is associated with a high risk of comorbid substance abuse, presuming that the painful symptoms frequently lead to excessive self-medication (Merikangas et al., 1998; Tran, Haaga, & Chambless, 1997). It is a risk factor for subsequent depression (Bittner et al., 2004) and has also been associated with a more malignant course of depression compared to other anxiety disorders, with more frequently incidents of intense suicidal ideation, increased likelihood of suicide attempts, and

predominance of disease chronicity (Stein et al., 2001). As social phobia is a prevalent, severe, impairing, and chronic disorder, effective treatment methods are strongly needed.

2.1.6 Subtype classification

Clinically, social phobia has usually been divided in two subcategories; general (GSP) and non-general (NGSP) or “specific” subtype (SSP). NGSP (or SSP) has yet not been included as distinct subtypes in any diagnostic criteria. The descriptive text of the DSM-IV criteria (American Psychiatric Association, 1994) clarifies that individuals with GSP have fears in most social situations (specified in 5 main areas; initiating or maintaining conversations, participating in small groups, dating, speaking to authority figures, attending parties). Further, it emphasizes that individuals with GSP usually fear both public performance situations and social interactional situations. Although not specified, the non-general subtype would be comprised of those having fears in a limited number of social situations (e.g. fear of public speaking). The empirical support for such a categorical classification is contradictory. Mannuzza and colleagues (1995) found that GSP can be distinguished reliably from non-generalized SP, that GSP is a valid subtype, and that GSP may characterize a familial form. However, Stein, Laine, Torgrud and Walker (2000) did not find support for such subtyping in a community summary involving social phobics. Rather they found a continuum of severity with greater number of feared situations associated with greater disability. Turner, Beidel and Townsley (1992) using the DSM-III criteria had come to a similar conclusion a decade earlier, they did not find evidence for a qualitative difference between the two subtypes, the core of the disorder looks as though identical. However, they claimed to retain a quantitative GSP subtype defined by number of social fears, as it “provides additional information with regard to the severity and pervasiveness of distress in social phobia” (p. 330).

Other distinctions in qualitative subtyping have been attempts to separate broad interactional fears, as the core characteristic of GSP, from performance fears which best characterizes NGSP or SSP (Hook & Valentiner, 2002). Also public speaking anxiety (e.g. “stage fright” observed with musicians) has been introduced in the context of social phobia subtyping (Hook & Valentiner, 2002). Examining two large samples of persons with lifetime SP, Cox and colleagues (2008) found empirical support for a differentiation of public speaking anxiety, as it appeared to be a separate factor in their factor analyses. Moreover, individuals with speech anxiety were found to be similar to a normal control group and different from a generalized social phobia group in an earlier study (Hofmann et al., 1997). Public speaking anxiety may be regarded a specific version of a more broad performance anxiety.

Öst and colleagues (1981) classified subjects with social phobia into two groups, based on their individual response pattern when experiencing social stress: (1) “behavioural reactors” with poor performance and skill, and (2) “physiological reactors” with large increases in heart rate. He observed that “behavioural reactors” benefited more from social skills training, whereas “physiological reactors” benefited more from applied relaxation. However, this distinction by response pattern has not been replicated by later studies (Jerremalm et al., 1986; Merch et al., 1989). Hofmann and Barlow (2002) introduced a similar distinction characterising a “fearful” subgroup of individuals who by elevated physiological reactivity develop intense fear in social situations (e.g. performing a speech).

At last, two more distinctions has been made: One separating low and high novelty-seeking tendencies as constituting two qualitatively different subgroups (Kashdan & Hofmann, 2008), and finally one introducing an interpersonally derived classification, by which a hostile angry group and a friendly submissive group could be separated (Kachin, Newman & Pinkus, 2001).

In two recent reviews (El Gabalawy et al., 2010; Stein et al., 2009) the validity of DSM-IV defined subtype distinction between GSP and NGSP, or between interpersonal and performance social fear, was not supported. In general the distinction between subtypes of social phobia is not important when it comes to the prediction of outcomes (Bögels et al., 2010; Stein et al., 2009), and this has been a common view in the field, although disagreements on subtyping still exist. As a consequence the DSM-V revision may change the existing subtype classification. In their review finding no empirical support for the current GSP specifier, Bögels and colleagues suggests the utility of a specifier indicating a performance variety of SP. Thus, the future revision in the DSM-V may prefer to include a performance anxiety subgroup specifier of SP.

2.1.7 Treatment of social phobia

Psychological treatments (Acarturk et al., 2009; Ponniah & Hollon, 2008; Powers et al., 2008), pharmacotherapy (Jorstad-Stein & Heimberg, 2009; Ipser, Kariuki, & Stein, 2008), and their combination (Blanco et al., 2010) have been empirically validated in randomized controlled trials as effective treatments for social phobia. Among the psychological treatments, cognitive therapy, social skills training, and applied relaxation have been tested. Social skills training has not been empirically supported (Ponniah & Hollon, 2008), whereas cognitive therapy and applied relaxation has been supported (Rodebaugh, Holaway & Heimberg, 2004). Heimberg's cognitive-behavioral group therapy (Hope, Heimberg, & Bruch, 1995) has been extensively tested empirically (Heimberg et al., 1998; Liebowitz et al., 1999), acknowledged to be effective, and has obtained a widespread application. Although cognitive group therapy was the treatment of choice twenty years ago, several individual cognitive treatment protocols have been developed and empirically tested in the last two decades. The individual cognitive therapies emphasize different aspects of the cognitive

interventions, as a consequence a number of versions coexist today (e.g. cognitive-behavioral emphasizing exposure with anxiety management, “pure” cognitive restructuring emphasizing to challenge maladaptive beliefs, and different combinations of these). These various cognitive techniques all usually produce moderate to large effect sizes, and it has not been possible to identify any of these as superior to the others (Powers et al., 2008; Rodebaugh et al., 2004a). The treatment model introduced by Clark and Wells (1995) was derived from empirical tests of a theory describing the factors maintaining anxiety in social phobia. Several trials have supported this individual cognitive treatment, proving to be superior to a selective serotonin reuptake inhibitor (Clark et al., 2003), to group cognitive therapy (Stangier et al., 2003), and exposure combined with applied relaxation training (Clark et al., 2006).

The core intention in the cognitive treatment is to help patients challenge maladaptive beliefs about themselves and the world, such that they can view the world in more accurate and realistic ways. Besides cognitive distortions, persons with social phobia also encounter difficulties interacting with other persons. They struggle with initiating and maintaining social relationships and fulfilling social roles. Intuitively, therapeutic models emphasizing the interpersonal aspects of the strains in social phobia could potentially be applicable to alleviate the distress of persons with this disorder.

Although cognitive approaches have been predominant among the psychological interventions, also interpersonal therapy (IPT) designed for social phobia has been developed and tested. In a clinical case series study (Lipsitz et al., 1999), IPT demonstrated promising patient improvement on symptoms. Only one randomized controlled study has yet been published (Lipsitz et al., 2008), demonstrating significant changes from pre - to post treatment on social phobia symptoms, but not superiority to supportive therapy. The study had no wait-

list control group, consequently the superiority to a non-treatment group, or specificity of interpersonal treatment for social phobia has yet to be proved. Preliminary reports from a study on CT versus IPT for social phobia, suggest that both therapies were superior to a waitlist control and CT was superior to IPT (Stangier, Consbruch, Schramm, & Heidenreich, 2010). Other psychological treatments based on psychodynamic theory are developing, and are being compared to CT, but results have not yet been published (Leichsenring et al., 2007). Finally, mindfulness and acceptance-based group therapy has been conducted for social phobia in an open trial, demonstrating promising patient improvements (Kocovski et al., 2009).

Gains have been well preserved at follow-up in cognitive treatments (Ponniah & Hollon, 2008; Rodebaugh et al., 2004a), whereas discontinuation of medication (Davidson et al., 1994; Haug et al., 2003; Liebowitz et al., 1999), and even maintained medication (Liebowitz et al., 1999) has been associated with substantial relapse in psychopharmacological treatments, in the range of 30-60 % (Blanco et al., 2002). Addition of psychological treatments may prevent such high relapse rates after discontinuation of medication in psychopharmacological treatments. Liebowitz and colleagues (1999) concluded: "Taken together, these results suggest that, although phenelzine may offer more immediate benefit, the coping skills gained during CBGT may help clients to maintain their treatment gains and prevent a significant proportion of the relapses observed in the medication group".

Summing up, the most recent reviews on pharmacological (Ipser, Kariuki, & Stein, 2008), combination of pharmacological and cognitive therapy (Blanco et al., 2010) and psychological treatments (Acarturk et al., 2008; Hofmann et al., 2009; Ponniah & Hollon, 2008; Powers et al., 2008), do not find any of the existing psychological or pharmacological treatments to be superior. Usually the combination therapy has not been found to add to the

effects of the separate therapies (Otto et al., 2004; Foa, Franklin, & Moser, 2002; Black, 2006; Prasko et al., 2006), whereas the recent study by Blanco and colleagues (2010) seems to be an exception, finding the combination therapy to be superior.

2.2 Personality and personality disorders

2.2.1 Classification and definition

In the modern classification based on criteria sets in the DSM system (Diagnostic and Statistical Manual of Mental Disorders, APA, 1952, 1968, 1980, 1987, 1994), a multiaxial approach with a separate axis (Axis II) dealing with personality disorders (PDs), was introduced in the third version (DSM-III, 1980) and expanded the existing single axis for symptoms disorders. The fourth version (DSM-IV, 1994), defines a personality disorder as: (1) “an enduring pattern of inner experience and behaviour” that (2) “deviates markedly from the expectations of the individual’s culture”, is (3) “pervasive” and (4) “inflexible”, has (5) “an onset in adolescence or early adulthood”, is (6) “stable over time”, and (7) “leads to distress or impairment”. This pattern has to be manifested in two (or more) of the following areas:

- (1) *cognition* (i.e., ways of perceiving and interpreting self, other people, and events)
- (2) *affectivity* (i.e., the range, intensity, lability, and appropriateness of emotional response)
- (3) interpersonal functioning
- (4) impulse control

There are ten categories of DSM-IV personality disorder. The DSM clustering system groups the subcategories of DSM-IV personality disorder into three broad “clusters”: Cluster A, B and C. Cluster A (“eccentric”) personality disorders are those considered to be marked by

odd, eccentric behavior. Paranoid, Schizoid and Schizotypal personality disorders are in this category. Cluster B (“dramatic”) are evidenced by dramatic, erratic behaviors and include histrionic, narcissistic, antisocial and borderline personality disorders. Cluster C (“anxious”) are distinguished by the anxious, fearful behavior commonly seen in obsessive-compulsive (OCPD), avoidant (AvPD) and dependent (DPD) personality disorders.

2.2.2 Prevalence of personality disorders

PDs are quite common, the median point prevalence for any PD in the nonclinical community population has been estimated to be from 6.1% to 10.6% (Huang et al., 2009; Grant et al., 2004; Lenzenweger et al., 2008; Torgersen, 2009). Lifetime prevalence has been estimated to probably 30-40% (Torgersen, 2009). In patient populations approximately 50% have a present personality disorder (Zimmerman et al., 2008), and thus, as a group represent the most frequent disorders in psychiatric treatment.

2.2.3 Validity of personality assessment, personality disorder dimensions or categories?

Assessment of PD is associated with several methodological issues. The divergent validity of personality assessment is threatened by overlapping criteria with Axis I symptom disorders. As a consequence, a current symptom diagnosis enhances the chance of getting one or several PD diagnoses. In addition there are overlapping criteria between PDs, increasing the possibility of multiple PD diagnoses if criteria for one PD is satisfied. Thus, patients with PDs rarely belong to just one category of personality disorder. Both convergent validity (the sensitivity to identify the disorder which it is supposed to catch) and divergent validity (the lack of overlap with other PDs) of the SCID-II items-based criterion sets has been found unsatisfactory for the majority of PD disorders in some studies (Ryder, Costa, & Bagby,

2007), whereas other studies find moderate (Grilo et al., 2000) or substantial support for the categorical classification (Arntz, 1999; Cox et al., 2007). Moreover, current symptom disorders may influence how patients are evaluating themselves and their relations to other persons, and these state dependent self evaluations may weaken the validity of PD assessment.

PDs are by definition supposed to be enduring and temporally stable, but several studies indicate extensive variability of personality evaluations when they are separated by a time lap. PDs is temporally more stable than major depressive disorder (Skodol et al., 2005), but appeared to be less stable than expected (Melartin et al., 2010) in a prospective study. Quite surprising, in a 2 year follow-up study the remission rates were higher in the PDs than in the anxiety disorders (Shea & Yen, 2003). These variations occurring in the longitudinal assessments of PDs, undermine the temporal validity. The unanticipated instability of personality disorders seen in prospective and longitudinal studies may be attributed to inherent limitations in the categorical definitions of the DSM-IV PDs. Several studies using factor analyses of the PD items have empirically supported the usefulness of PDs as diagnostic categories (Arntz, 1999; Cox et al., 2007). Other studies have not confirmed the categorical structure in the DSM-IV Axis II diagnoses (Nestadt et al., 2006). Clark (2005), summarizing the common pattern in longitudinal studies, noted that PD disorders is not as stable as the core dimensions that underlies personality pathology. Several prominent researchers have found empirical evidence supporting alternative dimensional structures to the categorical classification of PD (e.g. Brown, 2007). The number of dimensions varies, three dimensions (Cloninger et al., 1992), four (Leibing et al., 2008; Livesley, Jang, & Vernon, 1998; Mulder & Joyce, 1997) or five (Costa & McCrae, 1995; Nestadt et al., 2006; Ryder, Costa, & Bagby, 2007; Widiger, 2005) have been identified. Even though data-

analyses from Cox and colleagues (2007) supported the existing hierarchical organization of PDs, they identified a latent common dimension covering all the three PD clusters; a single higher-order (quote):“.....Axis II personality disorder factor” (p. 1913). They also concluded that a dimensional representation of DSM-IV Axis II disorder was supported, stating that the dimensional model demonstrated a particular strong fit to the data. They concluded that dimensional assessment of personality disorders is superior to categorical assessment. This has been the most prevailing view recently (Grilo et al., 2004; 2007; Leibling et al., 2008; Morey et al., Nestadt et al., 2006; Skodol et al., 2005), and the changes in the soon coming revision in the DSM-V will probably reflect a dimensionally perspective in the Axis II disorders (Widiger & Trull, 2007), providing a more consistent and clinically useful diagnostic instrument (Verheul, 2005). Thus, the evidence that personality pathology is best conceptualized dimensionally, is very persuasive. A dimensional perspective on personality implies that stable traits can be identified. In the assessments of PDs, temporally less stable processes involving behavioral aspects of the personality traits determine whether a categorical PD diagnosis should be applied or not. Pure categorical assessments of PDs do not seem to capture the stable, consistent nature of personality (e.g. cognitive, affective, interpersonal components) very well, and may lead to inconsistency and accidental findings.

2.2.4 The relation between Axis I symptom disorders and Axis II personality disorders.

To what extent do comorbid personality disorders affect the course or treatment of symptoms disorders, and how does current symptom disorders influence personality? The interrelationship of personality and psychopathology is complicated, and perhaps it is impossible to fully distinguish how they mutually impact on each other. In their overview on personality and psychopathology, Krueger and colleagues (2003) summarized the four

proposed models of the relationship between Axis I and Axis II disorders that seemed to have gained consensus as plausible explanations for this relationship: (a) the predisposition/vulnerability model; (b) the complication/scar model; (c) the pathoplasty/exacerbation model; and (d) the spectrum model. The predisposition model implies that when an Axis II disorder is present, the probability of developing an Axis I second disorder (e.g. social phobia) increases. In this model, avoidant personality disorder traits could be understood as vulnerability factors, e.g. predisposing an individual to develop social phobia. The complication model reverses the causality, and implies that an existing Axis I disorder enhances the probability for developing a personality disorder. A chronic Axis I disorder, such as GSP, may cause changes in the personality development towards more excessive avoidance, resulting in a full-blown avoidant PD. The pathoplastic model is based on the principle that Axis I and Axis II disorders are etiologically independent, but that personality may influence the course of Axis I disorders. This model would imply either that individuals with affective or anxiety disorders and an additional PD disorder are more severely affected than individuals without such comorbidity (represent a synergistic effect), or that a PD disorder affects the symptom profile or the way the Axis I disorder is expressed (the pathoplastic effect). The spectrum model posits that similar Axis I and Axis II disorders are developed from a common basic ground. They are thought to represent a continuum, ranging from subclinical traits to pronounced psychopathology. The relation between the generalized social phobia subgroup and avoidant PD has been explained according to such a model, in which mild social fears and full-blown avoidant PD disorder are regarded as opposite representations on a continuum (Holt et al., 1992; Ralevski et al., 2005; Widiger, 1992). Empirical research has not yet provided clear indications which model represents the optimal conceptualization.

2.2.5 The impact of PDs on the treatment

In the treatment field there is a longstanding belief that comorbid personality adversely affects the outcome of Axis I symptom disorders. The empirical evidence does not unitarily support this belief. A recent review reported a very high median non-completion rate in treatments of PD (McMurran, Huband, & Overton, 2010), a rate which in itself suggest that PD affect treatment outcome adversely. Some studies indicate that PD impair the treatment outcome in social phobia (Chambless et al., 1997; Feske et al., 1996), whereas other studies do not show effect on immediate (Huppert et al., 2008) or longer term (Oosterbaan et al., 2002) outcome. Affecting treatment response or not; there is a common agreement that PD comorbidity in social phobia is associated with lower quality of life, more impairment, greater severity of illness and an increased likelihood of comorbid other Axis I disorders (Cox et al., 2009; Wilberg et al., 2009) .

2.2.6 Cluster C personality disorders

Cluster C PDs has been specifically associated with anxiety disorders (Huang et al., 2010; Tyrer et al., 1997), thus we were interested to examine dimensional changes in these PDs to investigate whether changes in PD dimensions are associated with changes in symptoms and process factors during the treatment of social phobia. In a factor analysis of cluster C PD criteria, Fossati and colleagues (2006) observed that avoidant, dependant and obsessive-compulsive PDs share a common latent dimension. Although some studies have reported high temporal validity of the OCPD criteria (Morey et al., 2004), and adequate convergent and divergent validity (Ryder et al., 2007), the OCPD status in the Cluster C domain has been questioned in several other studies (Reichborn-Kjennerud et al., 2007; Sanislow et al., 2009). In their longitudinal study, Sanislow and colleagues observed that over time, OCPD became more correlated with schizotypal and borderline PD than with avoidant PD. In another

longitudinal study, Shea and colleagues (2004) concluded that OCPD did not show the predicted changes of anxiety disorders, thus failing to support a crosscutting anxiety/inhibited dimension underlying OCPD. Moreover, Reichborn-Kjennerud and colleagues, in their study of genetic and environmental influences on dimensional indices of cluster C PDs, concluded that OCPD appears to be etiologically distinct from avoidant and dependent PD. AvPD and DPD have been found to share a common underlying factor (Nestadt et al., 2006).

Unfortunately we were not able to investigate the course and changes of OCPD dimension in our study, due to the low internal reliability of the OCPD index.

2.2.6.1 Dependent personality disorder (DPD)

A person with dependent personality disorder shows an extreme need to be taken care of that leads to fears of separation, and passive and clinging behavior. This disorder is indicated by five (or more) of the following items (from DSM IV, American Psychiatric Association, 1994):

1. difficulty making daily decisions without an excessive amount of advice and reassurance from others
2. needs others to assume responsibility for most major areas of his or her life
3. difficulty voicing disagreement with others because of fear of loss of support or approval (excluding realistic fears of punishment)
4. difficulty starting projects or doing things on his or her own (because of little self-confidence in judgment or abilities, rather than a lack of motivation or energy)
5. excessively attempts to obtain support from others such that he or she volunteers to do unpleasant tasks

6. feels uncomfortable or helpless when alone because of exaggerated fears of being unable to care for himself or herself
7. urgently seeks another relationship as a source of support when a close relationship ends
8. overly worried about being left to take care of himself or herself

Dependent personality traits have been characterized as rooted in four domains: “First and foremost, dependent personality traits stem from a set of beliefs about the self and others (i.e., a *cognitive* component), wherein the person views him or herself as powerless and ineffectual, and perceives others as being relatively powerful and potent. Second, dependency involves a *motivational* component wherein the person exhibits a strong desire to obtain and maintain nurturant, supportive relationships. Third, there is a *behavioral* component of dependency, which is reflected in the person’s suggestibility, compliance, interpersonal yielding, and help-seeking tendencies. Finally, dependency involves an *affective* component, which consist of performance anxiety, fear of abandonment, and fear of negative evaluation by others” (Bornstein, 1998, p. 176). Factor analyses of the DPD items have consistently distinguished a separate emotional-attachment dimension (e.g. criteria 6, 7, 8) of the construct (Arntz, 2005). Leaning on suggestions by Livesley and colleagues (1990), he differentiates an attachment behavioral style which involves active proximity seeking, and the help-seeking behavior exhibited in dependency. Empirical support for such a distinction has been delivered in a factor analysis study by Gude and colleagues (2004) who found that DPD could be divided in an “abandonment-attachment” dimension (items 6, 7, 8), and an “incompetence-dependent dimension” (items 2, 3, 4). Items in the incompetence-dependent dimension are supposed to be particularly sensitive to anxiety, as they all accentuate the ability to act autonomously in

the absence of support from a helper. Unfortunately we were unable to measure changes in these dimensions due to low consistency in these indices.

2.2.6.2 Avoidant personality disorder (AvPD)

An individual with avoidant personality disorder typically is socially inhibited, feels inadequate, and is oversensitive to criticism, as indicated by four (or more) of the following criteria (from DSM IV, American Psychiatric Association, 1994):

1. avoids work-related activities that involve much social contact, because of fears of criticism, disapproval, or rejection
2. is unwilling to get involved with people unless certain of being liked
3. fears of shame or ridicule lead to excessive shyness within intimate relationships
4. is overly concerned with criticism and rejection in social situations
5. is inhibited in new social situations because of feelings of inadequacy
6. views self as socially incompetent, personally unappealing, or inferior to others
7. unusually reluctant to take personal risks or do new activities because of fear of embarrassment

AvPD is characterized by extensive behavioural, cognitive, affective and interpersonal avoidance. AvPD has been found to be a one-dimensional construct with good internal consistency in several studies (Becker et al., 2009; Hummelen, Wilberg, Pedersen and Karterud, 2006). Although a major consensus on the main core in AvPD is established, a dispute exists on which components should be emphasized in future editions of the DSM criteria. The DSM-IV 1994 edition include items representing both social and non-social avoidance. However, the elements of non-social avoidance (harm-avoidance, avoidance of strong emotions, avoidance of new stimuli, avoidance as a general strategy) has been

attenuated compared to earlier editions. As we will comment in the next section, the 1994 DSM-IV revision may have strengthened the already existing overlapping and similarities in criteria between AvPD and social phobia.

2.2.7 Social phobia and avoidant personality disorder

Among the Axis II personality disorders, avoidant personality disorder (AvPD) is most frequently concurrent with social phobia (Skodol, 1995), and a longitudinal study (Shea et al., 2004) demonstrated that AvPD was significantly associated with anxiety disorders, and specifically to social phobia and obsessive-compulsive disorder. Based on patients with AvPD, Rettew (2000) in a review estimated the average concurrency rate across studies to be 42%. Even though social phobia belongs to the Axis I spectrum, and AvPD is rooted in the Axis II spectrum, the two disorders share common elements in their criteria. Fear of humiliation and avoidance of social situations are key criteria in both disorders. The considerable overlap in criteria and the high incidence of concurrency in SP and AvPD has led researchers in the field to conclude that the disorders are separate only on a severity continuum, with NGSP as the least and GSP followed by AvPD as the most severely disturbed patients (Heimberg, 1996; Turner, Beidel, & Townsley, 1992). However, the criteria are not identical and a lot of patients with Axis I disorders with no social phobia also have concurrent AvPD. Cox and colleagues (2009) analyzed overlap of social phobia and AvPD in a large national sample and found the two disorders to be highly related, but with potentially separable constructs. Jansen and colleagues (1994) concluded that the probability of having concurrent AvPD was identical among social phobia patients without panic disorder and panic disorder patients without social phobia, although avoidant traits were found more often in social phobics. Based on review analyses of large samples of AvPD patients with and without SP, Arntz (1999) concluded that the hypothesis suggesting that AvPD is a subset of

GSP should be rejected, even though a strong association exist between them. Arntz suggested that AvPD patients typically demonstrate a broader area of avoidance compared to GSP patients, and exhibits non-social avoidance such as harm-avoidance, emotional avoidance, and resistance to explore new unacquainted activities. Arntz also observed that the later DSM revisions have weakened those non-social traits in the AvPD criteria. The studies of AvPD patients samples, biased with the selection of SP patients mainly, may have contributed to mislead researchers to declare a stronger association between them than supported by data collected from broader samples including non-SP patients. Later, Taylor and Alden (2004) reached a similar conclusion. In a series of studies of non-clinical and clinical samples they observed that different dimensions of avoidant measures consistently clustered together, reflecting an underlying personality dimension of avoidance. They observed that the avoidant dimension includes both social and non-social avoidance. An example of non-social avoidance is the tendency to withdraw from novel stimuli, novelty avoidance. Other researchers have explored related constructs: Low excitement seeking (Widiger, 2001; Wilberg et al., 1999) high harm avoidance (Svrakic, 1993) and low tolerance of high emotion (Arntz, 1999) are three examples. The objections raised by Arntz seem reasonable and justify to consider SP and AvPD as separate disorders with partly overlapping criteria. Bögels and colleagues (2010) have come to a similar conclusion, and suggest that AvPD in a wider perspective may be viewed as part of a schizophrenia spectrum.

2.3 Process factors associated with changes during treatment

The DSM-IV criteria and psychological models of SP emphasize the patients' excessive worries of being negatively evaluated. They fear that their own behavioural performance, appearance, or signs of anxiety symptoms in public lead to fatal social consequences of being disliked and rejected. These models presuppose that improvement in clinical symptoms will

necessitate reductions in catastrophic cognitions typical for the SP disorder. Such catastrophic cognitions are typically expressed in judgemental biases which contribute to maintain the social anxiety. Empirical support for the mediating role of such cognitive changes in psychological treatments has been delivered in several studies (Foa et al., 1996; Hoffart et al., 2009; Hofmann, 2004; Nelson et al., 2010; Rapee et al., 2009; Smits et al., 2006; Taylor et al., 2010; Trew & Alden, 2009; Vogele et al., 2009; Wilson & Rapee, 2005). Estimated cost (severity) of feared outcomes in future social encounters as well as estimated probability (likelihood,) has frequently been shown to mediate improvement in social phobic symptoms following treatment (see Wilson & Rapee, 2005; Hofmann, 2004 regarding cost, see MacManus et al., 2000; Smits et al., 2006 regarding probability). Other cognitive processes that have been associated with improvement are loss of control (Vogele et al., 2009), negative views of one's skills and appearance (Rapee et al., 2009), post-event processing (McEvoy et al., 2009), and rumination (Trew & Alden, 2009). Rumination seems to be important to alleviate fear among social anxious patients who struggle with anger.

The mediating role of interpersonal factors in the treatment of social phobia is more or less unknown. To our knowledge, only one study has examined whether interpersonal factors mediates improvement in the treatment of social phobia (Vogele et al., 2009). They found that relationship satisfaction did not mediate symptomatic improvement in social phobia or agoraphobia.

To our knowledge no studies have examined which patient factors are associated with changes in PD and PD dimensions in the treatment of SP.

2.4 General aims of the study

The aim of the study was to examine the course of two different treatments (cognitive and interpersonal) for individuals with longstanding social phobia, the majority with a history of previous treatment failure. We wanted to evaluate and compare the efficacy of the two different treatment approaches delivered in a residential format. We examined how well the improvement achieved during treatment was preserved at one year follow-up. We also examined the change of personality disorders during treatment, and explored whether pre treatment factors or in treatment changes in cognitive and interpersonal factors were associated with changes in two personality dimensions; avoidant and dependent. Finally we wanted to examine for whom the treatments were most effective. We explored whether pre treatment patient characteristics predicted treatment effect and changes in avoidant and dependent PD dimensions.

2.4.1 Research questions

Paper 1

1. The main aim of this study was to test the relative efficacy of cognitive and interpersonal treatments for persons suffering from severe social phobia, implemented in a residential setting. Residential IPT (RIPT) and residential CT (RCT) had not previously been evaluated or compared.
2. The specific interpersonal and cognitive treatments for social phobia were originally developed as individual treatment protocols. We wanted to evaluate whether the modification to a group format with less emphasis on individual treatment was successful.

3. On the basis of the outcomes in the individual therapy studies of Clark and colleagues (2003) and Lipsitz and colleagues (1997, unpublished manuscript), we hypothesized that RCT patients would improve more than RIPT patients on the specific social phobia measures.

Paper 2

1. Do number of PDs decrease from pre treatment to 1-year follow-up?
2. To what extent will dimensional indices of the avoidant and dependent disorders change from pre treatment to 1-year follow-up, and do they change differently in the two treatments?
3. Do changes in cognitive and interpersonal process factors predict changes in anxious personality dimensions beyond the impact of symptoms, and do such factors predict differentially in the two treatments?
4. Do pre treatment factors predict changes in avoidant and dependent personality dimensions at follow-up, and do such factors predict differentially in the two treatments?

Paper 3

1. Could we find analogous moderator effects of cognitive and interpersonal treatment for social phobia as did Sotsky and colleagues (1991) for depression? That is, is cognitive dysfunction more closely related to poorer outcome in RCT than in RIPT, and social dysfunction more closely related to poorer outcome in RIPT than in RCT?

2. Do later age of onset and more positive treatment expectations predict better treatment outcome?
3. Do concurrent panic disorder with agoraphobia, level of depression, body dysmorphic disorder, avoidant PD and dimensional measures of avoidant PD predict outcome?

3. MATERIAL AND METHODS

3.1 *Participants*

Modum Bad is treating adults with SP disorder from all regions of the country. Patients admitted to the hospital from November 2001 to February 2003 who were diagnosed SP and satisfied the criteria (reported in the articles), were consecutively included as participants in the study. The 80 participants (39 male and 41 female) were recruited from a pool of 130 applicants with symptoms of SP. Eleven did not attend the screening interview, 32 did not meet the entry criteria. Eighty-seven individuals were randomized. When the treatment started, the number of eligible patients was 80, and these participants constitute the final sample.

Paper 1 and 3 covers the whole sample.

Paper 2 covers the 77 participants who were available for the personality diagnostics at admission, 3 participants left treatment before the diagnostic evaluation could be completed.

At admission, the mean age of the entire sample was 37.5 years ($SD = 11.4$), and duration of SP was 19.7 ($SD = 12.3$). Fourteen (17 %) participants were individuals with a limited number of feared situations, and were characterized as specific subtype (as we have emphasized in the introduction, formally, no such subgroup is defined in the diagnostic criteria). The remaining 66 (83 %) participants were diagnosed generalized SP. The overall comorbidity of the sample was high, 73 (91 %) had lifetime Axis I comorbidity, and 48 (60 %) had at least one PD diagnosis. The functional impairment of the sample was severe, only 29 (37 %) were able to work and only 7 (9 %) stated that they had not received any treatment for SP.

3.1.1 Ethical considerations

The data collection has been approved by The Data Inspectorate and the Regional Committee for Medical Research Ethics. The study has been registered in Clinical Trials Registries Database (Id. no. NCT00326430). The participants gave their written consent. Analyses of measurements and data were anonymous. General guidelines for research were followed.

3.2. *Treatment*

Patients were admitted to two separate units in the hospital delivering either cognitive (CT) or interpersonal (IPT) therapy. The teams in both units were previously trained to deliver an integrated residential combined individual and group treatment. The individual cognitive and interpersonal treatment protocols, designed for 12-14 weeks outpatient programs (Clark et al. 2006; Lipsitz et al., 1997, unpublished manuscript), were condensed and adapted to the 10 weeks residential treatment format. The participants received 10 individual sessions, and an average of 4 group sessions per week. About half-way through treatment, the participants left the hospital for one week at home. During this week they explored new strategies in their home environment, finding more adaptive ways of handling their social phobic symptoms. The most significant relatives or friends were invited to visit the hospital for 5 days. They were educated about the SP disorder and the respective treatment models, and were given advice how to best support their disordered relative or friend.

The treatments will only be shortly introduced here, they are more thoroughly reported in paper 1.

3.2.1 The residential cognitive treatment

The cognitive treatment was derived from the specific cognitive model of social phobia developed by Clark and Wells (1995). The model posit that SP is due to exaggerated beliefs of oneself and others, leading individuals with SP to make excessive negative interpretations in social situations, preventing them to benefit from repeated apparently successful social exposure. These negative interpretations are seen as danger appraisals, which are heavily maintained by five processes involving cognitive, attention and behavioral strategies: (1) increased attention directed towards self (lead to decreased observations of real world), (2) use of misleading information from self-observation (feelings, self-image and body symptoms), leading to negative appraisals of how they appear to others (3) exaggerated pre-exposure worrying (increase anxiety level and belief in assumptions concerning social failure prior to social exposure), (4) excessive post event rumination (preserves inappropriate interpretations) and (5) excessive use of self-protecting safety behaviors. Safety behaviors, the specific ways that individuals with SP use to protect themselves when they perceive social danger, referred to as safety behaviors, contributes largely in the maintaining process. Safety behaviors prevents revealing false assumptions of social danger, increases self-focus, reinforces the presence of feared symptoms, and interferes with the ongoing social exchanges in ways that are likely to elicit less sympathy from others.

These processes were systematically reversed in the manualized treatment program. In the first session, each patient was interviewed to explore the ways he or she managed to deal with a feared social situation, and this information was used to develop an idiosyncratic version of the model, in which the patient delivered the material. Then, an in-session self-focus and safety behavior experiment was used to demonstrate the destructive effects on anxiety of self-directed attention and safety behaviors. This intervention was intended to encourage the

individual to focusing attention away from self and towards the surroundings by following the social events in the situation. In the subsequent sessions the participants were given assignments designed to develop a more extrovert attention style. Video-audio feedback following cognitive preparation were given to demonstrate that their self-image is prejudiced and corrupted by a process in which they have relied on intrinsic stimuli from their own mind and body, attempting to construct an impression of how they look in the eye of another person. Behavior experiments in group sessions and in naturalistic settings were extensively used to test the accuracy of the participants' assumptions prior to social exposure. Group sessions were used to prepare and elaborate assignments introduced in the individual sessions. Moreover, group sessions provided an opportunity to explore and discuss common experiences drawn from behavior experiments. In the latter phase of treatment, remaining self-beliefs were challenged individually and in group sessions by using prejudice as a metaphor (Padesky, 1990).

3.2.2 The residential interpersonal treatment

The interpersonal model posits that rigid patterns of interpersonal style maintain social anxiety and prevent development of more adaptive social behavior. Unhealthy parent-child relations, early disapproval or violation, may promote social insecurity. Social anxiety early in life may in turn promote and sustain patterns of social avoidance in later relationships (Rubin & Burgess, 2001). Social avoidance or within-situation "escape" behavior of anxious individuals is perceived as unfriendly by their relation partners. These may as a consequence respond less friendly, and thereby confirm the fear of the social phobic individual that others perceive them negatively. Thus, social anxious individuals are caught in vicious self-perpetuation cycles which preserve their social anxiety (Alden & Taylor, 2004).

The interpersonal treatment for social phobia followed a sequence of three phases (Lipsitz et al., 1997). In the initial phase (sessions 1-3) a review of symptoms was conducted followed by assessment of current and past relationships using an interpersonal inventory. Then the symptoms of SP were identified as expression of a known anxiety disorder. The patients were given the “sick role”, to alleviate the emotional strain of their impairment. The problems they had struggled with until then, were attributed to the anxiety disorder, rather than inherent unfavorable properties (e.g. weakness). The therapist proposed a link between SP and two specific interpersonal themes within the problem area of social role insecurity. In the second phase, when the patients had recognized that SP is a disorder that they have, and not an expression of their character, they were challenged to adapt to this different reality and encouraged to explore the new opportunities that arises with the enhanced understanding and insight in their inappropriate patterns of fear and avoidance. They were encouraged to test the new prosocial role by acting in a more self-disclosing and self-assertive way. Regular group process meetings (2 per week) were used to provide patients opportunities to implement their new role. In the third (terminal) phase gains were reviewed and consolidated, and future challenges were discussed in the preparation for discharge.

3.3 Instruments

The psychometric properties of the measurement instruments determine the confidence of the inferences one may draw from the study. The reliability of an instrument determine whether the items repeatedly are measuring dimensions of a construct with the same result, whereas validity is an evaluative judging process whether the instrument measures what it is supposed to do (Messick, 1995). Construct validity of an instrument is usually estimated by convergent and divergent (or discriminating) properties. Convergent validity is the degree to which a measure is similar to (converges on) other operationalizations that it theoretically should also

be similar to. Divergent validity describes the degree to which the operationalization is not similar to (diverges from or discriminates between), other operationalizations that it theoretically should not be similar to.

Generally we applied well-known and frequently used measures in studies of social phobia. However, even though measures are broadly disseminated, the psychometric properties may still be suboptimal. The reliability and validity may differ between interview-based and self-report measurements and we used instruments of both variants.

Interview-based measures: The social phobia section of the Anxiety Disorders Interview Schedule for DSM-IV (ADIS-IV; Brown, Di Nardo, & Barlow, 1994) was used to assess severity of social anxiety symptoms. The interview yielded dimensional ratings on a 9 point Likert scale ranged from 0 (“none”) to 8 (“very severely”) of four features: fear and avoidance of 13 social situations, and judgment of clinical severity by ratings of the degree of distress and interference in general functioning associated with the disorder. The interrater reliability for the social phobia module (Brown et al., 2001) is excellent ($\kappa = .77$, the distribution reported in paper 1 is .73 and refers to the GSP subgroup only). Following the established guidelines (De Nardo et al., 1993), Brown and colleagues (2001) interpreted the kappa coefficients as: (1) excellent agreement ($\kappa \geq .75$), (2) good agreement ($.60 \leq \kappa \leq .74$), (3) fair agreement ($.40 \leq \kappa \leq .59$), and (4) poor agreement ($\kappa < .40$). The reported kappas of the other anxiety disorders were in the range of good to excellent. The adequate interrater reliabilities reported, indicates that the capability to differentiate between anxiety disorders is adequate.

Self-reports: The Social Phobia and Anxiety Inventory (SPAI; Turner, Beidel, Dancu, & Stanley, 1989) was used as the main self-report outcome measure. The SPAI assesses behavioral, physiological and cognitive symptoms associated with SP. It comprises two sub-

scales and was used to measure avoidance and fear in different social (SPAI SP) and agoraphobic (SPAI AG) situations. The 32 items SPAI SP Scale and the 13 items SPAI AG Scale is scored on a 7-point Likert scale from 1 (“never”), to 7 (“always”). It has excellent internal consistency (Clark et al., 1994, unpublished manuscript), and good 2-week re-test reliability (Turner et al., 1989a). The SPAI-SP has good content validity for the DSM construct of social phobia. Confirmatory factor analyses supported the division of the SPAI into Social Phobia and Agoraphobia scales in three different samples; college students, patients with social phobia, and adolescents (Clark et al., 1994; Turner et al., 1989b), thereby providing support for the construct validity of the measure. The SPAI has demonstrated excellent convergent validity, and concurrent validity to physiological symptoms of SP has been demonstrated (Beidel et al., 1989). In college students and clinical samples of adults with social phobia and other disorders, the SPAI-SP has shown moderate-to-high correlations with other questionnaires as well as interview measures of social anxiety (Beidel et al., 1993; Herbert et al., 1991; Osman et al., 1995). SPAI is more moderately correlated to trait anxiety and general anxiety measures (Clark et al., 1994; Osman et al., 1995), and exhibit excellent sensitivity and specificity in classifying individuals with SP (Turner et al., 1989b), indicating that SPAI-SP is a good specific measure of SP.

The Fear of Negative Evaluation (FNE; Watson & Friend, 1969) was used to measure fear of being evaluated negatively. The FNE assesses cognitions associated with fear of being critically evaluated by others on a 30 items (forced choice “true” or “false”) scale. Seventeen items are straightforward-worded (e.g., “I am afraid that others will not approve of me”, whereas 13 items are reverse-worded (e.g., “I react very little when other people disapprove of me”). It has excellent internal reliability, both in the Watson and Friend student sample, and in a clinical sample (Oei, Kenna, & Evans, 1991, Watson & Friend, 1969). Test-retest

reliability was within the excellent range. The sensitivity for detecting treatment changes in cognitive therapy for individuals with SP has been found excellent in one study (Cox, Ross, Swinson, & Direnfeld, 1998). However, Rodebaugh, and colleagues (2004b) observed that the forced choice true or false properties of the scale may attenuate the sensitivity of the level of fear of respondents, and that reverse-worded items discriminates poorer than items worded in straightforward manner. It has been reported to correlate with other measures of anxiety, depression and emotional distress. However, it did not significantly discriminate between SP and other anxiety disorders except specific phobia (Oei, et al., 1991), a conclusion which confirmed the findings of Turner, McCanna, and Beidel (1987). Consequently the discriminative validity of FNE is inadequate.

The Social Attitudes Questionnaire (SAQ; Clark, Wells, Hackmann, Butler, & Fennel, 1994) was used to measure social phobia cognitions. The SAQ measures 50 social self-assumptions and core beliefs (nine items are positively phrased and are reverse scored) on a 7 point Likert scale ranging from 1 (“totally agree”) to 7 (“totally disagree”). The scale exhibit excellent internal consistency in a sample of social phobia subjects (Clark in a personal communication, referred in Tanner, Stopa, & Houwer, 2006).

The Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1995) was used to measure degree of depression. The BDI-II is a 21 items self-report questionnaire which on a 4 point Likert scale ranging from 0 (“absence of symptom”) to 3 (“severe Symptom”) assess depressive symptoms along affective, cognitive, motivational, and physiological dimensions. The BDI has proved excellent internal consistence, good re-test reliability and good concurrent validity applied for psychiatric and non-psychiatric subjects (Beck, Epstein, Brown, & Steer, 1988). In socially anxious adults, the BDI has shown good internal consistency and re-test reliability, and it correlates significantly more with other depression

measures than with anxiety measures (Coles, Gibb & Heimberg, 2001), confirming the BDI's specific ability to differentiate between anxiety and depression. Thus, the construct validity is strong.

The Beck Anxiety Inventory (BAI; Beck et al., 1988) was used to measure general anxiety. The BAI was developed to assess severity of anxiety symptoms along affective, cognitive, and physiological dimensions. The BAI 21 items 4 point Likert scale ranges from 0 ("not at all") to 3 ("severely, I could barely stand it"). Beck and colleagues (1988) found the BAI to have good convergent and discriminate validity, excellent 1 week re-test reliability, and excellent internal consistency. Factor analyses of the BAI and BDI items have confirmed the divergent validity of both measures (Endler, Cox, Parker, & Bagby, 1992; Hewitt & Norton, 1993).

The Young Schema Questionnaire (YSQ-S1; Young, 1998) was used to measure core self-schemas. The YSQ-S1 assesses on a Likert scale the presence of 15 early maladaptive schemas (EMS). Each item is rated using a 6 point scale, 1 ("completely untrue of me"), 2 ("mostly untrue of me"), 3 ("slightly more true than untrue"), 4 ("moderately true of me"), 5 ("mostly true of me"), 6 ("describes me perfectly"). Five items are tapped into each of the 15 EMS's using the 75-item short form (Stopa, Thorne, Waters, & Preston, 2001). The YSQ has good internal consistency, a stable factor structure across samples with various subject psychopathology, and exhibit consistency in higher-order factor structure to other theories of psychopathology (Lee, Taylor & Dunn, 1999). It possesses good convergent and divergent validity by measures of self-esteem, cognitive vulnerability for depression and anxiety, and PD symptoms (Schmidt, Joiner, Young, & Telch, 1995).

The 64-item version of the Inventory of Interpersonal Problems (IIP-64; Alden, Wiggins, & Pincus, 1990) was used to measure interpersonal vulnerability. The IIP-64 measures on a 5 point Likert scale from 0 (“not at all”) to 4 (“extremely”) 8 dimensions of interpersonal behaviors and concerns, each tapped by 8 items. The eight dimensions are derived from combining two orthogonal dimensions (the horizontal affiliation axis and the vertical control axis) describing the quality and intensity of interpersonal behavior. The internal consistency is good to excellent and re-test reliability is excellent (Horowitz et al., 2000; Vittengel, Clark & Jarret, 2003). The convergent and divergent validity is fair to good (Horowitz et al., 2000; Vittengel, Clark, & Jarret, 2003).

Weekly outcome: The Social Phobia Weekly Summary Scale (SPWSS; Clark et al., 2003) was used to examine the degree of subjects’ social anxiety, self-focused versus external attention, anticipatory processing, and post-event rumination over the previous week. We used 4 items of the SPWSS 6 items Likert scale, each item is ranged from 0 to 8. The SPWSS has excellent internal consistency, and has been used as an outcome measure in treatment trials of social phobia in adult populations (e.g. Clark et al., 2003; 2006). In the 4 items version used in the present study (article I), alpha was .89. The concurrent validity in the present study was evaluated by correlating the weekly outcomes with the 8 post-outcome measures (see table 1 in article I). The concurrent validity was mostly within the fair to good range. [Correction: In paper I, it is noticed that the SPWSS is highly correlated with a self-report version of the Liebowitz Social Anxiety Scale (LSAS; Liebowitz, 1987). This is not correct, the correlation between these two measures has not been examined to our knowledge. The quoted correlation is between the self-report LSAS (Baker, Heindrichs, Kim & Hofmann, 2002), and The Self-Statements During Public Speaking scale (SSPS; Hofmann & DiBartolo, 2000.)]

Social role security and Self-view as defective were constructed as new scales, and exhibited alpha values of .82 and .83 respectively.

Non-specific measures: The Credibility Scale (CS; Borkovec & Nau, 1972) was used to measure the credibility of treatments. The CS measures how logical the subject evaluates the treatment, how confident the subject think this treatment will be in reducing symptoms, how confident the subject would be to recommend the treatment to a friend, how willing the subject would be to undergo the treatment, all these items score on a 9-point scale, from 0 (“not at all”) to 9 (“very”); and how successful the subject feel the treatment will be in decreasing symptoms, this item score on a 11 point scale (0 – 100 %). It has not been able to find validity studies of the original instrument. A slightly modified version of CS has shown excellent internal consistency in two recent trials comparing alternative treatments for posttraumatic stress disorder (Becker, Anez, Parice, Bedregal, & Grilo, 2009; Becker, Darius, & Schaumberg, 2007). Devilly and Borkovec (2000) explored the psychometric properties of another slightly modified version of the CS. They confirmed the predicted two factor model of the questionnaire (cognitively based credibility and affectively based expectancy), found excellent internal consistency within each factor and excellent one week re-test reliability. The expectancy factor predicted outcome inconsistently, and the credibility did not predict outcome. That leaves the predictive validity of the CS still uncertain.

The 12 items Group Climate Questionnaire (GCQ; MacKenzie, 1997) was used to measure group cohesion. The GCQ is designed to assess the members’ perceptions of the affective qualities of the group as a whole (MacKenzie, 1983). The items are rated on a 7 point Likert scale from 0 (“not at all”) to 6 (“extremely”), and scores are grouped on three dimensions: engaged, conflict, and avoiding. It has been shown in numerous studies to provide a valid

prediction of group therapy outcomes (MacKenzie, 1996) and group process (Kivlighan & Goldfine, 1991). The re-test reliability is, as expected low, as the GCQ reflect the rapid change of the group's psychological climate.

The Social Behaviour Questionnaire (SBQ; Clark et al., 1994) was used to measure participants' use of safety behaviors (self-protecting strategies). The SBQ measure in 28 items how often subjects engage in general safety strategies (e.g. "try not to attract attention") and specific safety behaviors (e.g. "avoid speaking loud") to reduce fear when anxious in, or before social situations. Each item is rated on a 4 point Likert scale, 1 ("never"), 2 ("sometimes"), 3 ("often"), 4 ("always"), referring to how often different safety strategies (e.g. "rehearsing what to say in conversations") are applied. It is an unpublished scale, and the psychometric properties of the original scale are not known. A slightly modified version (6 items added) has excellent internal consistency (McManus, Sacadura & Clark, 2008).

Integrity measures: The Cognitive Therapy Scale (CTS; Vallis, Shaw, & Dobson, 1986) was used to measure therapeutic competence in the performing of cognitive therapy. The CTS measures competence along three domains: (1) general interview procedure, (2) interpersonal effectiveness, and (3) specific cognitive techniques. The original scale consisted of 11 items rated on a 7 point Likert scale (0 – 6). The most recent version consists of 13 items. In addition three general items are covering; the overall competence as a therapist, the likelihood that the therapist would have been selected for participating in an outcome study, and patient difficulty. These general items were used in the study. The 11 items version has been extensively tested and exhibit good to excellent internal consistency (Dobson, Shaw, & Vallis, 1985; Vallis et al., 1986). Reports on inter-rater reliability are mixed, Vallis and colleagues reported only a fair level, whereas Dobson and colleagues (1985) reported good levels. Divergent validity has been reported to be satisfactory (Vallis et al., 1986). The 13

items version has also been examined, and demonstrates excellent internal consistency and inter-rater reliability (Blackburn et al., 1991). Only limited support for the relationship of level of competence and outcome has been found (Shaw et al., 1999).

The Collaborative Study Psychotherapy Rating Scale (CSPRS-6; Hollon, 1984) was used to measure adherence and competence of the delivered interpersonal therapy. The CSPRS-6 measures on a 7 point Likert scale the adherence of cognitive (CT) and interpersonal therapy (IPT). The full CSPRS scale (96 items) includes sub-scales for CT and IPT, both with 28 items, a 20 items scale for common items, two modality-tangential scales (4 CT, 4 IPT) and two modality non-specific scales; “facilitative conditions” (8 items) and “explicit directiveness” (4 items). Scores from 1 (“behavior not present”) to 7 (“behavior entirely present”) describes the degree to which the respectively modalities are reflected in the therapeutic interventions. The 28 items IPT scale and the non-specific scale “facilitative conditions” were used in the study. The CSPRS has good to excellent internal consistency, and fair to excellent inter-rater reliability (Hill et al., 1992, Markovitz, Rabkin, & Perry, 2004). The construct validity of CSPRS has been supported by several studies, it reliably differentiated CT, IPT and clinical management (Hill et al. 1992), and accurately differentiated treatments in psychotherapy with HIV-positive patients (Markovitz et al. 2004).

However, the ability to predict differences in patient outcome by variability in adherence or competence scales has been estimated close to zero in a recent review analyzing treatments of depression (Webb, DeRubeis, & Barber, 2010). This review may be considered to be a replication of an earlier review finding a corresponding lack of relationship between competence ratings and outcome (Whisman, 1993). This close to zero relation could imply that the integrity instruments are not reliable. Studies have indicated that these instruments are temporally limited in their sensitivity, ratings of adherence to specific cognitive therapy

techniques are related to short term (from one session to the next), but not to longer term outcome (Strunk, Brotman, DeRubeis, in press). Webb and colleagues (2010) also discuss other possibilities. Perhaps variability in integrity of treatments only plays a minor role in determining the extent of improvement, whereas variability in common factors, e.g. alliance, is more critical. Another possibility is that qualitative differences between therapists are most important for outcome, but that they are not adequately captured by the existing integrity instruments. Responsiveness describes the therapists' ability to adapt their interventions to the emerging dyadic context (Stiles, 1999). Therapists may invest more adherence to those patients who appear at risk for evidencing poor outcome, at the expense of adaptation to the context, making the therapeutic interventions less effective. More adherence may then in some instances be reversely related to outcome.

The social relations 3-items subscale (domain 3) of the World Health Organisation Quality of Life (WHOQOL-BREF) assessment instrument (Szabo, 1996) was used to measure social relationships. The WHOQOL-BREF is a shorter 26 items version of the 100 items WHOQOL-100. It measures quality of life in four domains (6 in the 100 items version): physical health, psychological, social relationships, and environmental. The psychometric properties of the WHOQOL-BREF for the general Norwegian population have been examined (Hanestad, Rustøen, Knutsen, Lerdal, & Wahl, 2004). The internal consistency of social relationships domain was relative low ($\alpha = .60$), whereas the physical health domain demonstrated relatively high consistency ($\alpha = .87$). The discriminative power was estimated to be strong. Hanestad and colleagues concluded that the psychometric properties of the Norwegian sample show a similar tendency to samples in other international studies. The tendency for lower consistency in the social relationships domain was attributed to the low item number (3).

Diagnostic interviews: The DSM-IV Axis I (First, Spitzer, Gibbon, & Williams, 1995) and Axis II (First, Spitzer, Gibbon, Williams, & Benjamin, 1997) interviews were used to diagnose symptom and personality disorders. The Axis I interview is based on standard questions for each item. Each item is scored on a 3-point scale, 1 (“absent”), 2 (“subthreshold”), and 3 (“threshold”). Diagnoses were obtained by adding the number of items coded within threshold. Diagnostic criteria varies, usually several symptoms have to be coded threshold in subsets of criteria dimensions to reach the diagnostic threshold, and a common requirement is that the scored symptoms severely disturbs adaptation to life.

The DSM-IV Axis II interview is also based on standard questions and applies a similar scoring system. The number of threshold scores necessary to reach diagnostic criteria is decided for each PD diagnosis. Dimensional indices were calculated for avoidant, dependent and obsessive-compulsive PDs by adding 1 – 3 scores, divided by number of items. The psychometric properties of these three scales varied, the internal consistencies of the pre-treatment indices were; $\alpha = .61$ for avoidant PD dimension, and $\alpha = .64$ for dependent PD dimension. These *alphas* were considered sufficiently high to let the scales be incorporated in further analyses. However, the OCPD index was very low ($\alpha = .36$) and consequently this scale was not further analyzed.

The DSM-IV Axis I classification system has shown good to excellent reliability for mood and anxiety disorders using ADIS interviews (Brown et al., 2001). For current social phobia, reliability was excellent, whereas lifetime reliability was good to excellent. Also Structural Clinical Interviews of Axis I disorders (SCID-I) have yielded excellent reliability for the majority of the examined disorders, fair to good reliability was demonstrated for the other disorders (Zanarini et al., 2000). The DSM-IV Axis II Diagnostic Interview of Personality Disorders (DIPD-IV) indicated good to excellent interrater reliability (Zanarini et al.). Re-test

reliability was fair to good, whereas most dimensional reliability figures for Axis II were in the excellent range. The temporal stability of the Axis II PDs has been questioned, and are discussed more in detail in the introduction.

3.4 Statistical analyses

The statistics were performed by computations using the Statistical package of Social Sciences (SPSS) version 13, 14 and 15, and SAS.

The analyses were intention-to treat (ITT), and the last observation carried forward procedure (LOCF) was used in the presence of missing scores. In case of dropouts, this is regarded to be a conservative estimate of the true value of the score for disorders which do not typically exhibit a deteriorating trend, unlike corresponding dropouts in a disorder deteriorating towards less health, in which the LOCF procedure would yield a biased “too healthy” value (Engels & Diehr, 2003).

An exploratory factor analysis was performed to identify natural groups of outcome measures, using principal components extraction with Varimax rotation (article I). Outcomes were analysed by repeated measures of MANOVA to determine significant time, treatment condition, and time x treatment condition effects (article I and II). Paired t-tests were used to examine whether patients in each treatment condition significantly improved from one evaluation to the next. PROC MIXED (SAS Institute, 1993a, 1993b) was used to identify potential effects of Time, Condition, and Time X Condition effects on the three weekly outcome measures (article I).

To evaluate the statistical significance of equivalence in article I, the confidence interval approach was used (Rogers, Howard, & Vessey, 1993).

Independent samples t-tests were used to compare scores between different groups.

Correlations were computed with Pearson's r . The chi-square tests by kappa coefficients (Cohen, 1960) was used to examine differences between the distributions of categorical measures in two groups.

The effect size (ES) is referring to a family of indices that makes it possible to measure the magnitude of changes in different measurement scores (e.g. treatment effect), independently of sample sizes. Cohen (1988) defined ES as the difference between the means divided by the standard deviation, (referred to as Cohen's d). In general it can be measured in two ways: (1) as the standardized difference between two means, or (2) as the correlation between scores of the independent and dependent variables. Rosenthal (1991) recommended using the paired t-test value in estimating the ES. However, the original standard deviations, as referred in Cohen's definition, should be used for correlated (e.g. repeated measures) designs, owing to the fact that correlation between scores reduces the variance and consequently will overestimate the actual ES when t-tests are used in the computation (Dunlap, 1996). Dunlap developed a new formula using t-tests, taking into account the correlations of the measurements, which he convincingly proved to be more accurate than the alternatives. Our estimates of the ESs is based on Dunlap's new formula (articles I and II).

Clinical significance of the participants' changes was estimated by two different methods, either (1) using the internal consistency as the reliability of the measure, following the recommendations of Martinovitch, Saunders, and Howard (1996), or (2) removing the potential effect of regression to the mean, by employing the reliability coefficient of measurements and the population mean to determine the "true value" of the pre-treatment scores, as recommended by Speer (1992).

Linear regression analysis quantifies the extent to which an independent variable has a linear relationship with the dependent variable, and was used in articles II and III. In article II difference scores were used in the regressions. Each process factor variable was analysed separately. Preliminary hierarchical regressions were used to assess whether changes in symptoms during treatment predicted changes in PD dimensions at follow-up. Pre treatment to follow-up difference scores of avoidant and dependent PD dimensions were entered as dependent variables, treatment condition was entered as a fixed factor, eventually predictive symptom changes was entered in the second step, in treatment changes of the process variable was then entered in the next step, and the treatment by process variable interaction was entered in the last step. Stepwise forward regression procedures were used to assess the relative strength in significant predictors. In article III, separate regressions were performed for each candidate predictor variable, main outcome was the dependent variable, the pre-treatment scores of the main outcome were introduced and controlled for in the first step, followed by the predictor candidate variable, treatment condition and in the final step the interaction of treatment condition by predictor candidate variable. Corresponding to the procedures in article II, stepwise forward regression was used in parsimonious models to identify the relative strength of significant predictors in the prior separate regressions.

4. RESULTS

Paper 1: Residential cognitive therapy versus residential interpersonal therapy for social phobia: A randomized clinical trial

The main purpose of this paper was to examine and compare the effects of two promising treatments for social phobia, cognitive (CT) and interpersonal (IPT) therapy. They were both originally developed for individual outpatient treatment, and we wanted to evaluate the adaptations of the treatment manuals to a residential group format. On the basis of previous trials in treatments of social phobia, we expected that patients receiving residential CT would improve more than those receiving residential IPT on specific social phobia symptoms.

Results: A significant main effect of time on the main outcomes was observed from pre treatment to one year follow up. Significant improvements occurred during treatment, both in specific and general symptoms, whereas only one of the general symptom measures; BDI, changed significantly and was improved from the evaluation interview to the pre treatment assessment. Patients continued to significantly improve from post treatment to one year follow up on all measures. Effect sizes were medium to large at post treatment, and large at one year follow-up. The hypothesized superior effect of CT on improvement of specific social phobia symptoms was not confirmed. No other interaction effects were observed on main outcomes or general symptoms, indicating that the two therapy models appeared to produce equal treatment effects. One of the weekly outcome measures, social role security, demonstrated a significant interaction effect, indicating a greater impact of RCT on this measure. The number of patients reporting use of minor tranquilizers was reduced at one year follow-up, as compared to their pre treatment use.

At post treatment nearly a third (31%) of patients had obtained clinical significant improvement, increasing to near half (48%) at follow-up. These patients are considered to have recovered. At post treatment more than half (56%) of the patients had reliably improved, rising to more than two-third (70%) at follow-up.

Summary: Patients in both treatments exhibited comprehensive, robust improvements at post treatment, and the therapeutic gains were well preserved or even increased one year after end of treatment. The expected superiority of residential CT over residential IPT was not demonstrated.

Paper 2: Pre-treatment predictors and in-treatment factors associated with change in avoidant and dependent personality disorder traits among patients with social phobia.

The main purpose in this paper was to examine the development and changes in PD disorders and PD dimensions of Cluster C PDs during social phobia treatment, compare the effects of CT and IPT treatments on PD dimensional measures and examine whether in treatment and pre treatment factors were associated with changes in PD dimensions.

Results: The number of patients with one or more PDs was substantially reduced, from 48 (62%) of 77 at pre treatment, to 20 (27%) of the 74 who completed the one year follow-up assessment.

A significant main effect of time on the avoidant and dependent indices was observed from pre treatment to one year follow-up. Both treatments were associated with a decrease in avoidant and dependent personality dimensions. The magnitude of treatment gains on the PD dimensions measured by effect sizes, approximated the improvements of symptoms reported in paper 1. A time by treatment interaction was observed, subsequent analyses indicated that the dependent dimension had decreased more in CT than in RIPT.

Changes in the avoidant dimension were predicted by changes in the cognitive process factor *estimated cost*. Changes in the dependent dimension were predicted by changes in two of the cognitive factors (*estimated cost and safety behaviours*). Changes in interpersonal factors did not predict changes in the two PD dimensions.

Use of anxiolytics the last month before treatment predicted larger changes in both the avoidant and the dependent dimensions.

Paper 3: Predictors of outcome in residential cognitive and interpersonal treatment for social phobia: Do cognitive and social dysfunction moderate treatment outcome?

The main purpose of this paper was to explore whether treatments that built upon patients' particular strength (cognitive or social) are associated with greater improvement in patients that have these strengths. We examined whether higher levels of pre treatment cognitive dysfunction would be associated with poorer outcome from cognitive therapy, and correspondingly, whether higher levels of pre treatment social dysfunction would be associated with poorer outcome from interpersonal therapy.

The secondary aim in this study was to explore whether earlier age of onset, and less positive expectancies was associated with poorer treatment outcome.

The third aim was to explore whether comorbid Axis I or Axis II disorders, or dimensional measures of these comorbidity symptoms were associated with treatment outcome.

Results: Our findings did not demonstrate that therapeutic changes in social phobia are best incited by treatment mechanisms that are in accordance with the strength of patients, although less social dysfunction was associated with better outcome in IPT, as expected. However, level of cognitive dysfunction was not associated with treatment outcome in CT. Interestingly, low levels of cognitive dysfunction was associated with better, and high levels with poorer treatment outcome of patients who received IPT. Thus, unexpectedly we found that general dysfunction, and not dysfunction of specific functional domains, differentiated the treatments. Patients receiving IPT with high, comparable to low general dysfunction, were less improved,

whereas level of general dysfunction was of no significance for the treatment effect in patients receiving CT.

Early age of onset of social phobia was associated with poorer post treatment outcome, as was less positive expectancies. The age of onset was also associated with one year treatment outcome, indicating that the predictive power was very robust. Less positive expectations was associated with poorer post treatment, but not with one year follow up outcome.

Most of the examined patient symptoms characteristics affected the post treatment results, so that more symptoms were associated with poorer improvement. These associations disappeared at one year follow-up. No other comorbid categorical disorder was associated with outcome, except one striking finding. Presence of panic disorder with agoraphobia was found to be associated with superior post- and one year follow-up treatment gains in patients receiving CT, whereas no such effect was observed among patients in IPT.

In short, general dysfunction and panic disorder with agoraphobia were found to moderate outcome of residential IPT and residential CT, respectively.

5. DISCUSSION

5.1 *Main findings*

This randomized clinical trial found that patients receiving residential cognitive and residential interpersonal therapy significantly improved their symptoms of social phobia, general symptoms and comorbid PDs and PD dimensional traits. The therapies were well tolerated and the attrition rate was modest. Patients continued to generally improve the year after treatment, indicating that the gains were wide-ranging and robust. The hypothesized difference between residential CT and residential IPT on the specific social phobia outcome measures did not arise, indicating that the treatments were equally effective. We found several factors to predict outcome, and general dysfunction and panic disorder with agoraphobia appeared to moderate the effects of residential CT and residential IPT respectively. (1) Residential IPT patients with high general dysfunction at pre treatment obtained less favorable outcome, whereas level of dysfunction did not affect the outcome of residential CT patients. (2) Residential CT patients with comorbid panic disorder with agoraphobia obtained a superior improvement compared to those without comorbid panic disorder, whereas no such effect was observed by residential IPT patients. The number of PDs one year after treatment was substantially reduced from pre treatment, and dimensional indices of avoidant and dependent PDs significantly declined, with a magnitude almost comparable to the reduction seen in social phobia symptoms. Dependent PD dimension index decreased more in residential CT than in residential IPT. Use of anxiolytics was the only pre treatment factor associated with changes in the two PD dimensional indices, indicating that patients who used anxiolytics before treatment had larger reductions in the PD indices than those who had not used anxiolytics.

5.1.1 Outcome

(1) The inability of residential CT to demonstrate superior specific efficacy compared to residential IPT may be attributed to the group format. Several previous studies have found the individual format to be superior to the group format in CT for social phobia (Mörtberg et al. 2007; Stangier et al., 2003). A recent review has also concluded that individual CT produces larger effect sizes (in average 0.32) and lower attrition rates than the CT group treatments (Aderka, 2009). No studies comparing individual and group therapy for social phobia have been found to judge individual as inferior to group treatment. These findings are quite conclusive, and may substantiate why our predicted specific superiority of CT did not occur. (a) Group therapy makes it more difficult to individually tailor behavior experiments. (b) The group may continue to distress some patients to an extent that they are unable to employ the group to a good purpose. (c) The patients may be more reluctant to reveal their worst images and thoughts in group compared to individual therapy. IPT, however, uses the group format to elaborate interpersonal themes, thus the group format does not hamper the IPT change process. These model specific differences may explain the selective impact of group treatment. (2) A second possibility is that the residential format, implying that the patients shared a rich common therapeutic environment, may have been a predominant treatment element, thus undermining the specific ingredients of the two therapies, causing them to exert less unique effects. (3) A third possibility is that the modest competence ratings, although the two therapies were apparently equally performed, may have affected CT more badly, thus prohibiting the powerful potential of this specific therapy model to completely unfold.

The therapeutic effects were robust and the patients generally continued to improve the first year after treatment. The majority had received occasionally support from local resources, and a minority had on a more regularly basis received additional non-specific treatment by local

resources the year after discharge. Those interventions may have contributed to the continuance of improvements. Another possibility is that the absence of medication during treatments may have contributed to make the improvements more robust. The combination of medication and psychological treatment may undermine the immediate treatments gains, and leave the patients more vulnerable to subsequent relapse. There is empirical support for such effects, both in the treatment of social phobia (Haug et al., 2003), and panic disorder (Barlow et al., 2000; Otto, Pollack, & Sabatino, 1996). The mechanism of such a possible negative effect of medication is unknown. Patients in a combination therapy may have lesser access to the natural physiological activation in the fear response, and consequently have lesser opportunity to adjust their cognitive assumptions invoked from this fear response during behavioral experiments. This could potentially be an example of state dependent learning. A third hypothesis is that the presence of medication may undermine the active psychological therapeutic change processes. Teuch and colleagues (2003) expected that antidepressant medication would make depressed patients more accessible to psychological treatment (client-centered therapy), but found no such effect. Contrary to expected, they observed that the addition of antidepressants made patients less able to reach higher stages of assimilation (e.g. using insight). Consequently, psychological mono-therapies may be superior to combination therapies in its greater capacity to facilitate the psychological recovery process in the longer term. A fourth hypothesis is that the durability of the improvements is due to a delayed therapeutic effect caused by the residential format, implying that the genuine improvement is not available until the patients are re-allocated to their own daily environment.

5.1.2 Predictors of outcome

The majority of the examined predictors in paper 3 exerted effects on short term outcome, whereas only pre treatment general dysfunction and comorbid panic disorder with

agoraphobia demonstrated durable effects at one year follow-up. The long term predictor effects are considered to be indications of stronger and more stable predictive capacity.

Expectations have been found to predict outcome in several other studies of social phobia (Chambless et al., 1997; Safren et al. 1997) and of other disorders (Blumenthal et al., 2007; Joyce & Piper, 1998). In a review, Greenberg, Constantino and Bruce (2006) emphasize the importance of patients' expectation as a pantheoretical change ingredient. Thus, our study may be considered to replicate and add validation to those previous suggestions. The study by Greenberg and colleagues found evidence for a non-linear relation between expectations and outcome; if expectations were excessively high, they tended to predict a less favourable outcome. Then, our findings may indicate that the treatments produced a productive level of expectations. The exact mechanism by which expectations affects treatment outcome is not known. (1) It may represent a placebo effect, by a mechanism of self-fulfilling prophecy, (2) it may exert an indirect effect making patients more engaged in the treatment process, or (3) it may strengthen the therapeutic alliance (Joyce & Piper, 1998). Our findings that comorbid panic disorder with agoraphobia exerted a strong and stable effect and differentiated the treatments, has not previously been reported, and although suggestive, it should be interpreted with caution until confirmed in further studies.

5.1.2.1 Differential effects of cognitive and social dysfunction

In the study reported in paper 3, we were not able to reproduce the findings of Sotsky and colleagues (1991), implying that the suggested therapeutic change model by building on the patients' therapy-consistent strengths, was not supported. We have no obvious explanation for general dysfunction to predict outcome in residential IPT but not residential CT. One hypothesis is that residential IPT patients with high general dysfunction were not able to utilize the group process. Our observation that the efficacy of residential CT is unaffected by

level of cognitive dysfunction, has been paralleled in previous studies of CT for depression (Spangler, Simons, Monroe & Thase, 1997). Spangler and colleagues suggested that CT is effective regardless of the patient's cognitive dysfunction. Then, our results may be viewed to strengthen the accumulated evidence of CT as a treatment that operates independently of the patient's cognitive dysfunction level.

5.1.3 Personality disorders and dimensional indices of avoidant and dependent PD

The increase in number of patients who no longer satisfied any PD criteria was impressive. As stated in the introduction, there are a lot of overlapping criteria between Axis I and Axis II disorders, so that loss of, or improvement in symptoms at an Axis I diagnosis, increases the likelihood of losing accompanying Axis II diagnoses.

The reductions seen in the dimensional indices of AvPD and DPD were quite impressive too, apparently approaching the changes that appeared in social phobia symptoms, but should be treated with a corresponding caution. The magnitude of change as measured by ES (0.76 – 0.82), is superior to the reported changes in personality problems as secondary outcome in a recent study of psychodynamic supportive-expressive treatment, (0.37 - 0.44; Vinnars et al., 2009), nearly parallels the average outcome of CT for PDs (1.0), and psychodynamic therapy (1.07) reported in the review of treatments for PDs by Leischnring and Leibling (2003).

In general the study demonstrates that dimensional measures are more sensitive than are measures of categorical Axis I or Axis II disorders in the ability to capture associations between treatment gains and patient characteristics. The empirically evidenced superiority of dimensional constructs of PDs, as discussed in the introduction, may be relevant to Axis I symptoms disorders as well.

5.1.3.1 Predictors of changes in PD indices

The superior reduction of PD dimensional indices in participants who had used anxiolytics before treatment, should be taken notice of. This result is in accordance with the findings in previous studies examining the long term effects of using benzodiazepines, indicating that discontinuation is associated with good clinical outcome (less passive coping, reduced severity of symptoms and reduced defensive mechanisms), a clinical improvement that may be explained by recovery from an addiction syndrome (Nyström, 2005). Thus, patients who were able to stop their anxiety medications, and complete their social phobia treatment, obtained a twofold effect in which the recovery from addiction added to the benefits of social phobia treatment.

5.1.3.2 In-treatment factors associated with change in PD indices.

Process variables

The most important in treatment factor associated with changes in PD indices was the cognitive factor of estimated cost. Interestingly, estimated cost has been the most frequently reported mediating process factor in studies of social phobia outcomes (Foa, Franklin, Perry & Herbert, 1996; McManus, Clark, & Hackman, 2000; Nelson, Deacon, Lickel, & Sy, 2010; Rapee, Gaston, & Abbot, 2009; Smiths, Rosenfield, Telch, & McDonald, 2006). This finding may indicate that the same underlying change processes, that is, changes in expected distress associated with encountering social situations, are involved in avoidant and dependent PD dimensions, and in social phobia symptoms respectively. These expectations may relate to previous experiences involving shame and embarrassment, in addition to anxiety.

5.2 Methods

5.2.1 Instruments

The majority of the instruments used in this study are considered to have satisfactory psychometric properties, with a few exceptions as mentioned in the methodology section.

This strengthens the validity of the study.

5.2.2 Internal validity

Internal validity refers to the confidence of inferences that can be made about the relationship between cause and effect in a study. In our study, it could be condensed to: Did the provided treatment cause the observed outcome? We were unable to establish a control group condition. Although social phobia exhibits a chronic and unremitting course left untreated (Bruce et al., 2005, Keller et al., 2003), the absence of a no-treatment control group leaves open the possibility that the gains observed in the study were due to the passage of time or eventually to the accumulated effects of repeated assessments, rather than the treatment provided to study participants. This lack of experimental control in the study design is a threat to the internal validity of the study. We did measure patient symptoms at the evaluation interviews, and although assessments at this evaluation and at pre treatment are not equivalent to assessments in a control group, it may provide some indications how the course of patients' symptoms varied before treatment. Except for depression, measured by the BDI, no other symptom measures changed significantly between evaluation and the pre treatment assessment. The course of depression is less stable and demonstrates a substantially higher recovery rate, than anxiety disorders (Bruce et al., 2007). A reasonable hypothesis is that the new knowledge of hopefully effective treatment acquired at evaluation, may have caused an effect by itself to moralize the patients between evaluation and admission, which caused the

significant decline in depression symptoms. A corresponding decline was not observed in general or specific anxiety measures, thus strengthening the likelihood that treatment affected the observed pre- to post changes in these symptoms.

As far as outcome at one year after end of treatment is concerned, additional treatments and other factors unable to control for, may represent further threats to the internal validity. Therefore, we do not know exactly which factors contributed to the continued gains the year after treatment. Although most patients did not receive intensive week to week treatment, the majority utilized different locally supportive services from time to time. These continued post treatment consultations may have been of vital importance in the participants' adaptation process. We do know that they had used corresponding services before treatment, which apparently were not sufficient to alleviate their difficulties. Thus, treatment may have exerted an indirect effect, by making patients better prepared to utilize locally based support, which may have contributed to preserve and increase their therapeutic gains.

5.2.3 External validity

External validity refers to inferences about the extent to which a causal relationship holds over variations in persons, settings, treatments and outcomes (Shadish & Campbell, 2002). The procedure of allocation to treatment with generous inclusion criteria, and sample characteristics referred to; low attrition rate, long duration of disorder, and high severity of illness and impairment, makes it naturally to compare our participants with other heavily disordered individuals seeking treatment of social phobia, meaning that the generalization to this target population is justified. However, the external validity across settings is considered to be threatened by the residential format, which makes it difficult to evaluate whether the findings could be fully transferable to non-residential contexts, which is the more usual contexts in the treatment of social phobia.

6. GENERAL CONCLUSIONS

The present study of adult individuals with a history of longstanding social phobia, receiving residential CT or residential IPT, demonstrated significant reductions in specific anxiety symptoms, general symptoms, cognitive and interpersonal process factors, number of diagnosed PDs and level of avoidant and dependent PD indices at one year follow-up. No between treatment differences were found on the main outcomes, and the gains obtained at post treatment were robust, and were further strengthened at one year follow-up. Nearly half had recovered at one year follow-up, and more than two-third had reliably improved. General dysfunction was found to moderate the treatment outcome. Residential IPT patients with lower general dysfunction before start of treatment had higher probability to improve than patients with higher general dysfunction. Residential CT patients improved independently of dysfunctional level. Panic disorder with agoraphobia moderated treatment outcome. Among Residential CT, patients with comorbid panic disorder with agoraphobia improved more than patients without this comorbidity. This effect was not seen in residential IPT. Patients which before start of treatment expected to improve, had higher probability to do so. Patients receiving residential CT improved more on the dependent PD index than did residential IPT patients. Patients who used anxiolytics before treatment had increased probability to improve their avoidant and dependent PD vulnerability.

6.1 *Strengths*

A strength of the study is the relatively large sample and low attrition rate, particularly in the residential IPT treatment. Very few patients were lost in the follow-up evaluation. The inclusion criteria were generous and the allocation to treatments from the consecutive referrals to the hospital, makes it much similar to an effectiveness study.

6.2 Limitations

There was no control or comparison group in the study that could indicate the effects of time or of the residential program itself.

The residential format is unusual, and restricts the possible generalizations of the study.

The number of predictor analyses in paper 2 and 3 was high, and increases the possibility of Type 1 errors, finding significant associations between variables when in fact no relation exists.

Competence levels implementing the specific elements in the treatments were relatively low, leaving doubt whether these elements or the residential treatment setting by itself was the prime active ingredient.

The measures of cognitive and social dysfunction in the present study (paper 3) were different from the measures used by Sotsky and colleagues, and may have affected the results.

6.3 Implications

6.3.1 Clinical

Residential CT and IPT are both effective psychological treatments for social phobia. Belief reduction in catastrophic cognitions (e.g. estimated cost of feared social events) is associated with improvement in symptoms, as well as in PD dimensions. In our study residential IPT seems most effective for subjects with lower general dysfunction, whereas patient dysfunctional level is irrelevant for the effect of residential CT. Also, patients with comorbid panic disorder with agoraphobia improved particularly well in residential CT, whereas the presence or not of panic disorder with agoraphobia was irrelevant for the effect of residential

IPT. Provided that our findings are replicated across settings, one implication of our results would be to allocate social phobic patients with comorbid panic disorder with agoraphobia, and patients with high general dysfunction to CT, if both CT and IPT conditions are available.

Expectations seem to be one important pantheoretical predictor for the overall outcome, and should be properly attended to by start of treatment (e.g. by introducing motivational interviewing techniques, see Driessen and Hollon, in press).

6.3.2 Research

A study comparing residential CT and residential IPT with a residential treatment as usual (e.g. non-specific supportive therapy) group and a wait-list group as control would be desired, to examine the specificity of the interpersonal and cognitive models for social phobia.

Although our study do not provide the possibility to make inferences to which extent treatment format (individual vs. group) affect outcome, recent studies point to the superiority of the cognitive individual treatment format. A study comparing our combined group and individual treatment protocol with an optimized individual treatment protocol in the residential setting, could provide further evidence of the relative efficacy of the formats.

The attrition rate of IPT patients was very low. Future studies should examine whether the attrition rate differ between CT and IPT, in which case patients with a history of dropouts in previous treatments could by convenience be allocated to IPT.

6.4 Suggestions to improve the treatments

Although the majority of patients reliably improved, a relatively large portion of the patients did not improve, and a few deteriorated. Consequently, improvement of treatment models is still required. Using motivational interviewing has been mentioned in the implications section

as a mean to optimize the treatment expectations. The specific cognitive model applied in the study may gain additional strength, by refining the conceptualization of the core elements of social phobia disorder, enable to develop more precise contexts to perform behavioral experiments (Moscovitch, 2009). In addition, the procedures used to weaken the impact of early images found among patients with SP (Hackman, Clark, & McManus, 2000) may be strengthened by using imagery rescripting and reprocessing techniques (Holmes, Arntz, & Smucker, 2007), aiming to change the image to a more benign or create a new more adaptive image of self. Moreover, the intense discomfort associated with shame, may in itself be an additional source of fear and avoidance. Consequently, a reinforced focus on how the elicited shame reactions inherent in SP contributes to maintain anxiety, may further add to the efficacy of psychological treatments. Finally, the paradoxical effect of social success seen among socially anxious individuals, which interpret positive social events in a threat-maintaining manner, demonstrated in recent studies (Alden et al., 2008), demand further adjustments of the current treatment models, e.g. by reinstating a benign social interpretation bias, to enhance the efficacy (Murphy et al., 2007).

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APPENDIX WITH INDIVIDUAL PAPERS I – III

